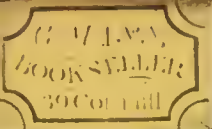


**SIMPLICITY  
OF  
LIVING.**



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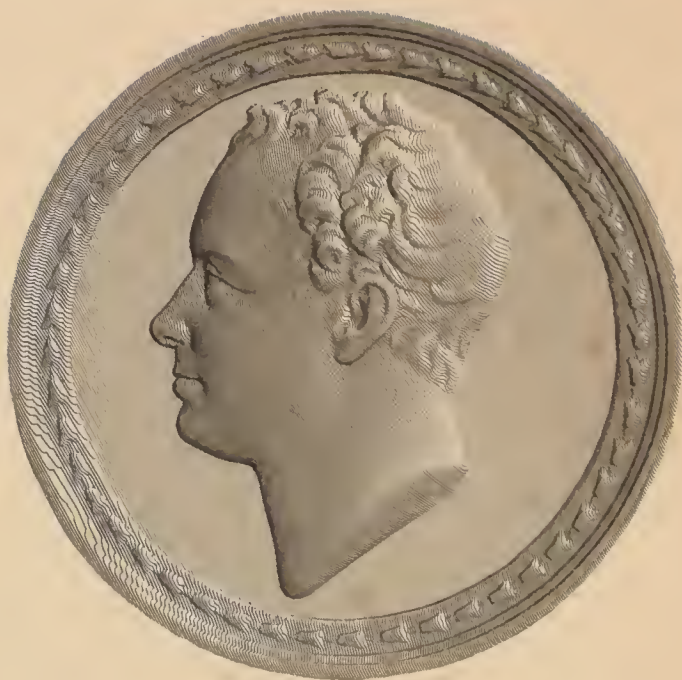
OBSERVATIONS  
ON THE  
PRESERVATION OF HEALTH,  
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J. Harrison Carter.

SIMPLICITY OF LIVING.

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OBSERVATIONS

ON THE

PRESERVATION OF HEALTH

IN

Infancy, Youth, Manhood, and Age :

WITH

A BRIEF ACCOUNT OF THE PRINCIPAL BRITISH AND CONTINENTAL  
SPAS AND WATERING PLACES.

*Λόγω ήγεμόνι εν παντί χρώμενος ουχ άμαρτήσεις.*

---

BY

JOHN HARRISON CURTIS, Esq.

AUTHOR OF A TREATISE ON THE PHYSIOLOGY AND PATHOLOGY OF THE EAR; ON THE PRESERVATION  
OF HEARING; THE PRESENT STATE OF AURAL SURGERY, ETC. ETC.

FOURTH EDITION.

LONDON:

JOHN CHURCHILL, PRINCES STREET, SOHO.

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1842.





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## Critical Notices of former Editions.

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This edition comprises many interesting remarks on the adulteration of food, the causes and prevention of diseases, watering-places, &c. &c.—*Argus*.

In the little volume before us, upon the "Preservation of Health," is a well-arranged mass of facts establishing the point, that the grand secret of keeping or getting health is—simplicity of living.—*Aberdeen Constitutional*.

This volume inculcates attention to the means by which life is prolonged, and the avoidance of those evils which abridge its duration and utility. It is a judicious practical work, and deserves the attention of all classes of the community.—*Baptist Magazine*.

Should the circulation of this compendious little work correspond with its utility, it must far exceed that of the celebrated treatises on the Eye and Ear, which have gained Mr. Curtis a well-earned notoriety. We recommend it to the head of every family, as a clear and practical directory (founded on physiological principles) for the preservation of the inestimable blessing of health.—*Bath Guardian*.

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Mr. Curtis, the eminent aurist, in his admirable treatise on the "Preservation of Health," has conferred a great benefit on the public. It is full of useful and interesting information, conveyed in a plain and intelligible style; and, without being prolix, comprehends every thing which can be supposed to bear upon the subject.—*Bell's Life in London*.

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Extremely well worth a careful perusal; being written in a plain and easy style, and with an apparent anxiety to do good to those who are disposed to follow the instructions it contains for the preservation of the constitution.—*John Bull*.

That man may be considered a benefactor to his country who teaches, by a few simple and easy rules, how the human machine may be kept in the best capability of enjoying life—in other words, in a state of health. That we think Mr. Curtis has done in the little volume before us, which ought to be accessible to the members of every family, old and young.—*Felix Farley's Bristol Journal*.

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This treatise will bring its own welcome with it, and is sure to become extensively popular. We recommend our readers to get the book itself on their library-shelves without delay.—*Cheltenham Chronicle*.

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This is an admirable book; every person who values health (and who does not?) ought to read it with attention, its chief aim being to benefit mankind.—*Chester Gazette*.

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The rules it inculcates are simple and easy; the style is popular; and taking it for all in all, we consider it a practical treatise well worthy of a place in every domestic library.—*Dover Telegraph*.

In arrangement, in style, and in illustration, it is orderly, perspicuous, and appropriate. The book has considerable merit, and should be in the possession of every one who values *mentem sanam in corpore sano*. It contains important directions in a small compass.—*Downpatrick Recorder*.

Cobbett, in his "Cottage Economy," says, that every parson should, upon pain of loss of ears, present a copy of that work to every girl that he marries, rich or poor. With all respect for the memory of him of "Gridiron" notoriety, we would suggest the adoption of Mr. Curtis's book in preference; convinced that if its precepts were attended to, disease would be less common, and the happiness of the people consequently increased.—*Dumfries Courier*.

Mr. Curtis is well known as the author of several able works on the structure and diseases of the ear and eye, which have met, we believe, with general approbation. The present work will not prove unworthy of his former reputation; but, on the contrary, add to it. It exhibits him as a writer, not only of accurate and extensive knowledge on the subject of which he treats, but as one who is willing and able to direct his talents into that channel, through which they may be rendered most serviceable and beneficial to mankind. The style is clear and simple, and totally devoid of professional technicalities.—*Dundee Advertiser*.

Mr. Curtis, in his "Observations on the Preservation of Health" in tropical climates, is eminently deserving the attention of our friends in India and the colonies.—*East India and Colonial Magazine*.

This is a plain, sensible, unpretending little treatise, on a subject of universal interest. It is not the least valuable feature of the work, that the author has drawn largely on the best popular writers on health.—*Tail's Edinburgh Magazine*.

Mr. Curtis's maxims for the preservation of health are sound and judicious, and utterly opposed to those of amateur dabblers in medicine.—*Edinburgh Weekly Journal*.

This little work presents in a brief compass a great body of useful advice and information, which no one who regards health as a necessary means of enjoying existence should leave unread.—*Edinburgh Evening Post*.

In a useful treatise on the "Preservation of Health," by J. H. Curtis, Esq., we find well-conceived observations on the subject of labour and exercise.—*Chambers's Edinburgh Journal*.

Mr. Curtis has been eminently successful in his treatment of diseases of the two most precious organs of sense, the eye and ear. In this work he teaches, by the simplest rules, the way in which health may be preserved, and life prolonged, without any of that art of book-making which has been, and is the great bane in works of this description. The book is not only fit for the more respectable classes, but ought to be disseminated through the great body of the people. The observations it contains on education throughout, deserve the serious consideration of every parent and teacher.—*Educational Mag.*

Mr. Curtis has here brought together a complete treasury of rules and recommendations connected with human health and habits, whether in reference to what we should eat, or what we should drink, or wherewithal we should be clothed. Small in size, but great in value, it richly merits a welcome in every English household, and a position in every library beside the works of a Sinclair, a Paris, and an Accum.—*Essex Mercury*.

We cannot better express our opinion of this excellent work than by recommending it to be purchased, read, and thoroughly studied by every man, woman, and child in the Queen's dominions.—*Woolmer's Exeter Gazette*.

We have no hesitation in recommending his treatise in the warmest terms. It is more than a merely useful work: it is absolutely interesting and amusing. When such are its claims to public favour, we are not at all surprised to find that the volume has already reached a second edition; it has only to be known to become far more extensively popular.—*Glasgow Scots Times*.

Notwithstanding the brevity of the work, there are few subjects connected with the proper regulation of the faculties of the mind and the body which do not come under the author's observation.—*Glasgow Chronicle*.

Mr. Curtis has recently given to the world a neat little volume on the "Preservation of Health," which abounds in information of a practical kind, and furnishes clear and precise rules, founded on physiological principles, for the guidance of all at every stage of existence.—*Globe*.

## CRITICAL NOTICES.

This work is from the pen of Mr. Curtis, with whose name the public are familiar, as author of several admirable works on Diseases of the Ear. Its subject is laid out in the clearest possible order, and its details handled with great professional skill.—*Greenwich Gazette*.

Containing much sensible advice, evidently deduced from mature study and experience, calculated as a guide to health for all classes in every period of life.—*Hampshire Chronicle*.

This is a valuable book, adapted for all classes, on a subject important to all, and every person may profit by the plain common sense and useful remarks which will be found in almost every page; it has the recommendation of containing much that is amusing as well as instructive.—*Hereford Journal*.

This unassuming but most valuable little work contains a series of exceedingly useful observations, the result of considerable experience, directed by a sound judgment; and the whole is written in a plain and popular style.—*Kent Herald*.

We think this work well calculated to advance that state of things, when how to take care of his health will be one of the leading parts of the moral and intellectual education of man.—*Leamington Spa Courier*.

This is a little book which deserves to be popular; it is calculated to increase Mr. Curtis's reputation as an author desirous and able to benefit his fellow-men; it is practical, judicious, and interesting.—*Leeds Mercury*.

The practical directions contained in this small volume are based upon the unerring principles of nature, and evidently deduced from mature observation.—*Lincoln Gazette*.

Full of judicious and sensible observations on the subject, gathered both from reading and from practical experience. Mr. Curtis, after setting out by putting us in the right roads to hear and see, very properly applies his advice to the whole physical and moral system of man.—*Literary Gazette*.

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In this small volume Mr. Curtis has attempted to render that which is well known to the scientific, familiar to the general reader.—*Medico-Chirurgical Review*.

It is far preferable to the larger and more technical treatises, the affectation of profound learning in which bewilders the mind of the general reader, and the expense of which deters a vast number from purchasing. Mr. Curtis does not pretend to do away with the necessity of medical advice; he only shews how best to avoid the misery of frequently wanting it. The book ought to become a family one, and as necessary to a household as Mrs. Glasse's treatise on cooking. The work will do much to open the eyes of the public on this subject.—*Metropolitan Magazine*.

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This little volume is exactly of the order which we should wish to see spread among the people. At once brief, clear, and intelligent, it gives a variety of important rules for the sustenance of man in mental and bodily vigour. Curtis is clever, and his little book is alike amusing and well informed. His description of the tender passion is excellent, true, and odd.—*New Monthly Mag.*

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It is due to the author to observe, that he has performed his task with ability, and that this little volume contains much useful information on a subject of the greatest importance to all classes of the community.—*Manchester Courier*.

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A valuable little work, containing much practical information.—*Musical World*.



## CRITICAL NOTICES.

To all whom want of time or want of money may deprive of the means of perusing the more costly and scientific treatises on the same subject, we can conscientiously recommend this valuable little work.—*Morning Post*.

An able treatise on a philosophical as well as medical subject. These pages breathe an amiable spirit and good feeling throughout, inculcating the soundest axioms in the most intelligible manner.—*National Magazine*.

Mr. Curtis was for some years a medical officer at the Royal Naval Hospital at Haslar, which circumstance alone would recommend his work for consideration. The general reader will find in this essay all necessary information on the preservation of health and the prolongation of life, communicated in a perspicuous and entertaining manner; the views of the author being frequently of a highly enlarged and philosophical character.—*Naval and Military Gazette*.

The pages of this work contain, in a condensed and convenient form, much valuable information respecting the habits of the system, and the mode of training to be adopted in infancy, youth, manhood, and age, for attaining longevity and preserving health. It is written in an easy, popular style, and will be of considerable service.—*Observer*.

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This is a new and improved edition of the "Observations on the Preservation of Health;" we congratulate the author on the well-merited success which has attended his literary labours. The "popular" editions of the works on the eye and ear afford evidence of the philanthropy of the author.—*Salisbury and Wiltshire Herald*.

The author's dietetic rules and general observations, as well as his professional knowledge and advice relative to the preservation of health, are often founded on experience, as well as deduced from sound authorities. We entirely agree with our amiable author.—*Sheffield Mercury*.

Under the above title a small book has lately been published by Mr. Curtis, which appears to supply a desideratum among works of this class. It is written on the plan of his well-known works on the preservation of hearing and sight, and is calculated to be as extensively useful as those productions. It contains directions for the guidance of all in regard to health at every period of life.—*Standard*.

The work will be found a comprehensive manual of health; from which the parent, the man of business, the old and the young, may alike derive information capable of being turned to account in the diminution of disease and suffering, and in increasing the enjoyment and duration of life.—*Sun*.

This is an excellent little work, full of the most useful information, observations, and directions, conveyed in a plain and intelligible style, brief and simple.—*Weekly Dispatch*.

The plan of this work is simple, and the style lucid and elegant; its price is so moderate, and the matter so good, that there are but few who could not possess the one, while all would be profited by the realisation of the other. We are much mistaken if most of those men who have felt the blessings of the temperance reformation do not place it upon their book-shelves as a family directory, not in cases of sickness, but as a guide in health to a long and useful life.—*Weekly London Temperance Intelligencer*.

A man that disregards his bodily health must, in the same degree, be guilty of impiety to God. We recommend this little work to our readers who consider life a blessing, and are desirous of living well, and of living as long as the apparatus of our present alimental life will last.—*Wesleyan Association Magazine*.

Of the general contents of this intelligibly written little book, we are bound to express our warm approbation.—*Worcester Journal*.

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It is written in a popular manner, and contains many sensible and excellent observations, perspicuously expressed, on the important subject of the preservation of the body in a state of health.—*New York Evening Post*.

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## ERRATA.

- Page 196, line 25, for Butts read Rutty.  
 „ 158, „ 24, for Clarke read Clark.  
 „ 259, „ 1, for a short distance from read on.

## PREFACE.

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SINCE the publication of the first edition of this work, in 1837, upwards of nine thousand copies of it have been sold in Great Britain. It has been translated into German, under the title of *Die Kunst lange zu leben*, by Dr. Calmann of Hamburg, and has been reprinted both in France and America. The seal of public approval having thus been set upon the work has made me anxious to improve each successive edition by every means in my power; and I have spared no pains to render it as complete and accurate as possible. There have recently been several indications of an increasing demand for information on the subject to which it relates; the most gratifying of which is the fact that several eminent physicians and surgeons, and among them a late President of the College of Surgeons, have condescended to become writers on the preservation of health. I rejoice to see in these events a proof that the objections which the profession have hitherto generally entertained against making the people at large acquainted with the principles of the science of health, are in some measure overcome: and we may now hope that the tide of instruction will year

by year become more full and broad, until, in its onward progress, it shall reach and benefit every human being.

That there is no happiness without health, every one who has experienced the deprivation of it even for a short period will readily testify ; and it is a deep conviction of this truth that induces me to press upon parents, guardians, and the instructors of youth, the duty of attention to the means by which this blessing may be secured to those committed to their charge. Mistakes, in themselves slight, are here frequently of the most serious consequence ; and from a mere youthful indiscretion, arising from ignorance of what would be its effects, the seeds are often sown of diseases which either embitter life, or send to a premature grave those who were objects of the fondest solicitude and the most ardent hopes. It is in youth, also, that the foundations of a vigorous manhood and of a cheerful old age must be laid ; and few things, in my opinion, would tend so much to these desirable ends, as communicating to the young such a knowledge of the animal economy, and of the laws on which health depends, as would enable them to judge what, under various circumstances, is conducive to health, and what is destructive of it. This would really be useful knowledge ; and were this method generally pursued, we should not so frequently see the human constitution broken down, and premature old age induced, by close confinement, too ardent study, want of air and exercise, &c. during the period of youth ; but especially by the

improper use of medicines, which too many parents consider themselves competent to administer both to themselves and to their children, and which medicines, however simple they may be, by their constant repetition on every fancied ailment, prevent the constitution from fully developing itself, and lay the foundation of future debility or disease.

As regards public happiness, statesmen and politicians too often forget, that though good political institutions conduce to it, yet that they are but one means to the attainment of this end, and that more than these are requisite to make individuals and nations happy. The cultivation of good-will, kindness, humanity, and all the gentler affections, are far more influential in the promotion of private happiness than the justest balance of the political constitution can be; so that though the value of civil and religious liberty is great, and has a large influence on national well-being, still it alone does not constitute happiness; and therefore it seems to me that those writers who devote their energies to the task of endeavouring to soften and improve the social affections, do incomparably more to promote the benefit of communities than those who have only in view what is more strictly designated "the public weal."

For the purpose of diffusing knowledge among every class of society on the subject of health, I have penned the following pages; in which my object has been, not to start original speculations, nor to attempt to enlarge the boundaries of science, but to present to the reader

a simple statement of those anatomical and physiological facts, from which may be derived a body of rules for his guidance in relation to those circumstances of every-day life which exert the greatest influence upon the health ; and which rules it has been my endeavour to set before him as *necessarily resulting from the constitution of his frame*. By pursuing this plan I hope I have avoided, on the one hand, the tedious and generally uninteresting details of science ; and on the other, that dogmatism and appearance of superficiality, which cannot but detract much from the influence of rules upon the conduct of those to whom they are addressed.

Long-recognised principles become truisms ; but, as such, instead of being disregarded, they should be the more highly valued. In the present advanced state of physiological knowledge there is little left to the writer on this subject, but to shew the practical application of these truisms to the actual state of society, and how their tendency may be most beneficially worked out for mankind at large. It has been my object to compress into a small compass the wisdom of past ages, with the improvements and discoveries of contemporaries ; nor, when my purpose has been answered by it, have I disdained to make use of the valuable information contained in the writings of others, and to record my obligations to many distinguished contemporaries.

The subject of this book—I repeat it—is the preservation of health, not the cure of disease. Its chief aim is to furnish practical directions for that purpose,



in relation to the four states of man—Infancy, Youth, Maturity, and Senility, so beautifully shadowed out in the physical world in the successive seasons of Spring, Summer, Autumn, and Winter. These rules are so simple, that no one, who pays the least attention, can misunderstand them; and I am persuaded that if they were systematically and rationally observed, they would tend greatly to prolong life, and to increase the capability of enjoyment.

A prejudice still exists, though far less general now than it was a few years ago, against the study of works on health; from which many evils are asserted to arise, and no counterbalancing good results. The persons who entertain this prejudice appear to think that instinct, (which, in their vocabulary, goes by the name of “common sense,”) however confessedly insufficient for other purposes, is quite capable of guiding them aright in respect to the health of themselves and their children, which they maintain would not be at all improved by attention to rules on nursing, diet, exercise, &c. &c. If such individuals would but reflect on these opinions, and examine the validity of the arguments by which they are supported, they would soon, I think, be compelled to acknowledge their error. Indeed, it may be laid down as a general rule, that prudent persons seldom experience a day’s illness; while the imprudent rarely enjoy a day’s health.

The functions of the body are so closely connected with the operations and feelings of the mind, that it

may safely be asserted, a healthy community alone can be a virtuous, and therefore a happy one. The chronicles, the crimes of every country furnish abundant evidence, how great a mass of wickedness has been occasioned by the exacerbation of disease. This is a feature of my subject too little insisted upon, and perhaps not sufficiently understood. I know that by teaching men how to live healthily, I am, at the same time, inculcating upon them the principles of morality; and this conviction has sanctified my labours, and will ever be to me a source of elevated satisfaction.

Although this work is designed, and, I trust, adapted to be, a *general* manual of health, yet the population of London is so vast, that I have judged it hardly a departure from its generality, to add some remarks having special reference to the metropolis; most of which, however, are also applicable to other large towns.

The great attention paid to the improvements of London must rejoice all who understand their influence upon the health of its inhabitants. No city in the world is better circumstanced for health than our favoured metropolis, although many beneficial changes of which it is susceptible still remain to be made. I have endeavoured to render some assistance in carrying out these requisite improvements, by suggesting additional places of resort for the enjoyment of exercise in the open air, and by calling attention to the impurity of the water and atmosphere, and the deplorable state of the sewerage in many parts of London. It is of the utmost im-



portance that some general measure should be adopted for the better construction and management of sewers, upon which the comfort and health of the people is greatly dependent. I have also adverted to the subject of cemeteries, the universal use of which for the purpose of interring the dead, would add much to the salubrity of every town; and in conjunction with other measures prevent a large amount of disease.

The adulteration of the principal articles of food, always extensively practised, has lately been much on the increase, and is a fertile source of injury to the health of the community. I have enumerated the more important of such adulterations, and pointed out the necessity which their frequency creates for the adoption of some means to prevent these serious offences.

It now remains for me to give the reader some account of the principal alterations and additions made in this fourth edition.

Desirous of rendering the following pages as complete a manual of health as possible, and convinced of the great benefits derivable from a change of air and scene—and also that mineral waters, although not so highly esteemed at the present day as they were formerly, and perhaps with reason, may yet, in many cases, when properly employed, prove of considerable benefit;—for these reasons, I say, I have devoted a considerable portion of the present edition to giving an account of the principal watering-places, not only in this country, but

also on the continent. Much of the information relating to these subjects I have derived from personally visiting the places described, and from communications with which I have been kindly favoured by many distinguished medical residents, my obligations to whom I shall presently more explicitly acknowledge. My chief regret is, that my limits have compelled me for the present to keep back a great mass of very valuable information so obtained, but which I hope to have other opportunities of laying before the public.

In advising my readers to make an excursion from their usual places of residence at least once a year, I am giving a precept which I make a point of confirming by my own example. In recently making a tour in Germany, I was influenced partly by the desire of healthful relaxation, and partly by that of obtaining information respecting my branch of the profession; and in both these objects my success was perfectly satisfactory. On a former occasion, I had derived much valuable information from visiting many of the hospitals of France, Belgium, and Holland; and during this last tour, I visited the principal hospitals at Vienna, Berlin, Prague, Dresden, Munich, Mannheim, Leipsig, Hamburg, and several other cities; and received great kindness and attention from the following among other distinguished foreign professional gentlemen: Baron von Wiegel, Adolphus Otto, C. Kluge, Von Ammon, Carus, Clarus, H. Clarus, Schiller, Pitschaft, Hutton, Theodore Richter, Dieffen-

bach, Böhm, Gruber, Schmalz, Schenkey, Koepf, R. Verity, Winter, Anglestein, Peez, Saegert, Micksick, Frike, Rittenik, C. de Schriebers.

In company with some of these gentlemen I visited the more important German spas, and received much information from them at the time, which has since been enlarged by communications from them.

The entire work has been carefully revised, and numerous minor additions and alterations made. The arrangement has in several instances been improved; and I trust that this edition will be found, on comparison with those that preceded it, in every respect superior.

Some have supposed, from my publishing a work on health, that I intended to practise as a physician, and I have in consequence been applied to on several occasions for advice. I wish it, therefore, to be distinctly understood, that I have no such intention as that referred to; but having relinquished my practice on the Eye, I confine myself exclusively to the diseases of the Ear. Twenty-five years have elapsed since I entered upon this branch of the profession; and I have every reason to be satisfied with what I have accomplished in that period. I leave it to the profession to say what was the state of aural surgery before I commenced practice, and what had been done to increase our knowledge of the diseases which affect that organ, and the treatment which should be adopted. I have been followed by many persons of talent not only in this country, but on the continent, and

both by regular and irregular members of the profession ; and I have had the gratification to know that I have rendered much service to many of my fellow-creatures from the highest to the lowest, and have mitigated much human suffering. From the intercourse I have had with the heads of the profession in this country and on the continent, I have obtained such information as does not fall to the lot of many ; and if I look back with satisfaction to what I have accomplished in the last twenty-five years, I look forward with pleasure to what I may accomplish in the next twenty-five years, should God spare my life. Notwithstanding many obstacles which have been thrown in my way, and which I have had some difficulty in overcoming, I have met with such patronage and success as has proved a stimulus to exertion, and will enable me to continue labouring in my vocation, and to carry out the views with which I originally commenced, every day's experience presenting new matter, and adding to the information which I possess.

JOHN HARRISON CURTIS.

2 SOHO SQUARE,

*March 10, 1842.*

# OBSERVATIONS, &c.

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## INTRODUCTION.

IN my work on the physiology and pathology of the Ear, I have remarked, that in order to hear and see well, it is necessary to be in health. I might have added, that hearing and seeing well are merely parts of what, in the aggregate, is denominated “health.” For what is health? It consists in that state of the bodily organs in which they perform their respective functions easily and well; when, in fact, this performance is a source of pleasure. So that the possession of a considerable degree of health is essential to the enjoyment of happiness, and even to the preservation of life. By what means health may be secured, is thus obviously an inquiry of the deepest interest to every individual; for, in the majority of cases, we may refer ill-health to ignorance or disobedience of the laws regulating the condition of the body, and through it of the mind.

That God designed man to be happy, is a proposition strongly supported by all that we know of his creation; and it is probable that our ignorance alone leads us to imagine there are any exceptions to its universality. The



most striking of these seeming exceptions is the existence of disease, entailing upon those subjected to it various degrees of misery, and finally death. Death is inevitable, and can easily be proved to be an instance of Divine benevolence; but disease is not a necessary evil. The causes of disease are yet but imperfectly understood, although constant additions are being made to our knowledge of them through the exertions of philosophic observers. By some persons, disease is represented to be the result of the direct agency of God, and inflicted by him for the purposes of moral training and correction: by others, it is considered to be the result of circumstances inherent in, and inseparable from, the present condition of man; whence they conclude that it is vain to endeavour to escape its attacks. A careful consideration of facts, and a knowledge of the characteristics of the three great classes of natural laws—the physical, organic, and intellectual or moral—would suffice to prove that both of these opinions or theories are unfounded. I shall therefore briefly explain what is meant by the natural laws, and mention some of their leading characteristics.

“ Law,” says Blackstone, “ in its most general and comprehensive sense, signifies a rule of action; and is applied indiscriminately to all kinds of action, whether animate or inanimate, rational or irrational. When the Supreme Being formed the universe, and created matter out of nothing, he impressed upon that matter certain principles from which it can never depart, and without which it would cease to be. When he put that matter into

motion, he established certain laws of motion, to which all movable bodies must conform.”

“ Every natural object has received a definite constitution, in virtue of which it acts in a particular way ; there must therefore be as many natural laws as there are distinct modes of action of substances and beings, viewed by themselves. But substances and beings stand in certain relations to each other, and modify each other’s action, in an established and definite manner, according to that relationship,—altitude, for instance, modifies the effect of heat upon water ; there must therefore be also as many laws of nature as there are relations between different substances and beings.”\*

But these individual laws, though thus innumerable, may be all included in the three classes above mentioned.

The physical laws embrace all the phenomena of mere matter ; an acid, for instance, applied to a vegetable blue colour, converts it into red ; and this is said to take place according to a chemical law.

The organic laws are the established modes according to which all phenomena connected with the production, *health*, growth, decay, and death of vegetables and animals take place ; and with these, therefore, I have in the following pages principally to do.

The moral and intellectual laws relate to all the manifestations of mind or of instinct.

The most important characteristics of the natural laws

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\* Combe, Constitution of Man.

are, 1st, that they are independent of one another; 2dly, that they are universal, unbending, and invariable in their operation.

A man, by obeying one set of laws, does not thereby receive an immunity from punishment for disobedience of the others, nor *vice versâ*. For example, if an individual, endeavouring, in the strictest obedience to the moral laws, to promote the well-being of his fellow-men, should violate either the physical or organic, his moral excellence will not, and cannot, preserve him from the penalties of such disobedience: and, on the contrary, a man who lives in total disregard of his fellow-men, and in habitual infraction of the moral laws, will, if he observes the others, preserve his health, and perhaps attain old age.

The natural laws are universal, invariable, and unbending. No change of geographical situation, no lapse of time, no human skill, can enable us to escape from their influence. Human laws are limited in their operation by divisions of countries—they are constantly varying, and as constantly evaded; and hence they are rendered far from completely efficacious. In these respects, then, human laws and natural laws are totally different.

Let us now apply these general facts to the particular subject of this work,—the preservation of health.

Our bodies are subject to the physical and organic laws: so long, then, as we act in accordance with those laws, we shall enjoy health; *but every infraction of them produces a proportionate deviation from that state.*

Men cannot obey laws of which they are ignorant; yet

will their ignorance not exempt them from the penalties of disobedience. The first thing to be done, therefore, is to acquire a knowledge of the natural laws: and these, so far as they relate to health, it is the purpose of this book to expound.

Loss of health is, in every instance, the result of the infringement of one or more of the laws, or conditions, essential to the well-being and activity of every organ; the knowledge and observance of which are, to a great extent, within our own power.

Errors in relation to diet, to muscular exercise, to clothing, to ventilation, and to other every-day concerns; morbid states of mind, the result of these errors, of excessive mental activity and excitement, and of defective education,—not only prepare the way for disease, but are themselves the immediate exciting causes of it. By learning to avoid, modify, or control them, we may secure for ourselves a large amount of health, both of body and mind; in other words, of happiness.

How much it is in the power of every one to affect, by attention to these apparently trifling things, in preserving his health, prolonging his life, and thus increasing his happiness, the numerous cases of persons attaining old age, in the possession of great bodily and mental powers, are decisive proof. Galen, though of an infirm constitution up to the age of thirty, attained to a great age by taking much regular exercise; so did Herodicus, the preceptor of Hippocrates, who was full of humours in his youth: Socrates and Agesilaus were also convinced of the

good effects of exercise, and the former constantly enjoined it on his scholars. Asclepiades, a celebrated physician in ancient Rome, publicly declared, that he was content to pass for an idiot, if ever attacked by illness, or if his death was caused by any thing but old age, or accident: nor was he deceived in his estimate of what he could accomplish by conformity to the laws of nature; he lived more than a century without any illness, and died at last from the effects of a violent fall.

The Plate p. 10, representing the family of Mr. West, the celebrated painter, a late President of the Royal Academy, consisting of his grandfather, father, himself, his wife, and two children, has been inserted because it contains personifications of the principal stages of human existence—infancy, youth, maturity, age, and old age; and also because the healthy and happy family here delineated furnishes an example worthy of universal imitation. They belonged to the community commonly called Quakers; and it may therefore be safely assumed, that to their obedience to the natural laws, to their regular and quiet mode of life, their attention to early hours, their temperance and placidity, and to their freedom from the follies and vexations of the world (by which qualities the members of the Society of Friends are so pre-eminently distinguished, that it would be well for the world in general if their healthy habits were every where adopted), the senior members of this group were indebted for their long lives, and for the gratification of seeing their descendants in the second and third generation.



I have known several such families not members of the Society of Friends ; but the only one I am aware of at this time is that of the illustrious Howards, which now consists of its venerable head, the Duke of Norfolk ; of his son, the Earl of Surrey ; of his grandson, Viscount Fitzallan and the amiable and accomplished Viscountess Fitzallan, and of his great-granddaughter, the Honourable Miss Howard, their daughter.

Another and most important cause of disease is the vice, folly, and ignorance of parents. It has long been known to philosophers, that the constitution, bodily and mental, of children is derived from that of their parents ; but this truth appears to be little known, and less attended to, by the great bulk of mankind. It is vain to expect that disease will ever be eradicated, or the condition of the human race much ameliorated, unless greater care and conscientiousness are displayed in the contraction of marriage, and in the conduct of those who have entered into that state. Various observations bearing upon this momentous subject will be found in the following pages.

The connexion between knowledge and health is now, I trust, sufficiently obvious. It is impossible to accommodate ourselves to the ever-varying external circumstances in which we are placed, unless we are acquainted with them and their mutual relations. Hence every discovery in science, however abstract, has a bearing more or less direct upon health. From this fact we infer, that the condition of man must have been constantly improving,

and his life becoming longer, from the rude state of primitive times up to the present day.

“ The first savages collected in the forests a few nourishing fruits and salutary roots, and thus supplied their most immediate wants. The first shepherds observed that the stars moved in a regular course, and made use of them to guide their journeys across the plains of the desert. Such was the origin of the mathematical and physical sciences. Once convinced that it could combat nature by the means which nature herself afforded, genius reposed no more ; it watched her without relaxation, it incessantly made new conquests over her, all of them distinguished by some improvement in the situation of our race. From that time, a succession of leading minds, faithful depositories of the attainments already made, constantly occupied in connecting them, and in verifying them by means of each other, have conducted us, in less than forty ages, from the first essays of rude observers to the profound calculations of Newton and La Place, to the learned classifications of Linnæus and Jussieu. This precious inheritance, perpetually increasing, brought from Chaldea into Egypt, from Egypt into Greece, concealed during ages of disaster and of darkness, recovered in more fortunate times, unequally spread among the nations of Europe, has every where been followed by wealth and power : the nations which have reaped it are become the mistresses of the world ; such as have neglected it, are fallen into weakness and obscurity.” \*

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\* Cuvier. Vide the Author's “ Lecture on the Anatomy and

The means which men possess of increasing their natural powers, by pursuing a systematic course of *training*, is clearly shewn in the surprising effects produced by a few weeks' training for the performance of extraordinary muscular feats; in the course of which, persons who had previously been unable to walk a few miles, have been enabled to walk as many as thirty in a day.\* If the muscles may be thus invigorated, what reason have we for thinking that, by the use of equally appropriate and powerful means, every other part of the frame may not also be strengthened? There *is* no such reason; and therefore it cannot be disputed, that men have it in their power to prolong their lives (since long life must in general be a result of strong and healthy organs); and this, as I shall afterwards shew, to an indefinite extent.

Some persons, however, may reply to all this, that longevity is a thing not worth striving after, and that their motto is, "A short life and a merry one." Be it so: with such individuals I have nothing to do; they form a very small minority of the human race. Few, indeed, are those who care not for life, and would not willingly take some pains to preserve it;—to the *majority* I address the following pages.

I conclude these introductory remarks by again assert-

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Physiology of the Ear in Man and Animals," delivered in the theatre of the Royal Institution of Great Britain before the President and members of that Society.

\* Captain Berkeley's System of Training.

ing the universality and inflexibility of the laws of nature. They are no regards of person; they make no exceptions; every offence against them receives its appropriate punishment, and that with infallible certainty. They may sometimes appear to be tardy in their operations, and to overlook offences; but surely, though silently and unobservedly, the exact amount of suffering which the case requires is inflicted.

All hope of escape is thus shut out; and those who value their health and happiness will therefore see the necessity of conforming to whatever laws shall appear to be plainly made out and ascertained.

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7. Mrs. Reed

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THE ACTORS

1. Mr. Reed 2. Mrs. Reed 3. Mr. Reed 4. Mrs. Reed 5. Mr. Reed 6. Mrs. Reed 7. Mr. Reed 8. Mrs. Reed 9. Mr. Reed 10. Mrs. Reed 11. Mr. Reed 12. Mrs. Reed 13. Mr. Reed 14. Mrs. Reed 15. Mr. Reed 16. Mrs. Reed 17. Mr. Reed 18. Mrs. Reed 19. Mr. Reed 20. Mrs. Reed 21. Mr. Reed 22. Mrs. Reed 23. Mr. Reed 24. Mrs. Reed 25. Mr. Reed 26. Mrs. Reed 27. Mr. Reed 28. Mrs. Reed 29. Mr. Reed 30. Mrs. Reed 31. Mr. Reed 32. Mrs. Reed 33. Mr. Reed 34. Mrs. Reed 35. Mr. Reed 36. Mrs. Reed 37. Mr. Reed 38. Mrs. Reed 39. Mr. Reed 40. Mrs. Reed 41. Mr. Reed 42. Mrs. Reed 43. Mr. Reed 44. Mrs. Reed 45. Mr. Reed 46. Mrs. Reed 47. Mr. Reed 48. Mrs. Reed 49. Mr. Reed 50. Mrs. Reed 51. Mr. Reed 52. Mrs. Reed 53. Mr. Reed 54. Mrs. Reed 55. Mr. Reed 56. Mrs. Reed 57. Mr. Reed 58. Mrs. Reed 59. Mr. Reed 60. Mrs. Reed 61. Mr. Reed 62. Mrs. Reed 63. Mr. Reed 64. Mrs. Reed 65. Mr. Reed 66. Mrs. Reed 67. Mr. Reed 68. Mrs. Reed 69. Mr. Reed 70. Mrs. Reed 71. Mr. Reed 72. Mrs. Reed 73. Mr. Reed 74. Mrs. Reed 75. Mr. Reed 76. Mrs. Reed 77. Mr. Reed 78. Mrs. Reed 79. Mr. Reed 80. Mrs. Reed 81. Mr. Reed 82. Mrs. Reed 83. Mr. Reed 84. Mrs. Reed 85. Mr. Reed 86. Mrs. Reed 87. Mr. Reed 88. Mrs. Reed 89. Mr. Reed 90. Mrs. Reed 91. Mr. Reed 92. Mrs. Reed 93. Mr. Reed 94. Mrs. Reed 95. Mr. Reed 96. Mrs. Reed 97. Mr. Reed 98. Mrs. Reed 99. Mr. Reed 100. Mrs. Reed

## CHAPTER I.

## INFANCY AND CHILDHOOD.

— Tener, et lactens, puerique simillimus ævo  
 Vere novo est. Tunc herba nitens, et roboris expers  
 Turget, et insolida est, et spe delectat agrestem.  
 Omnia tum florent; florumque coloribus almus  
 Ridet ager; neque adhuc virtus in frondibus ulla est.

OVID.

THE periods of infancy and childhood are those in which the human frame is most susceptible of injury, and in which morbid influences exert the greatest power: the large proportion (between a third and fourth) which deaths under the age of two years bear to the total number of births, is a sufficient proof of this;\* and in those who sur-

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\* Mr. Farr has kindly furnished me with the following statement respecting the metropolis for the year commencing June 1839, and ending June 1840.

	Births registered.	Deaths under 5 years.	Deaths under 5 years to 1000 registered births.
Males . . . . .	27,836	9655	347
Females . . . .	26,679	8800	330
Totals . . .	<u>54,515</u>	<u>18455</u>	<u>338</u>

From this it appears that nearly 34 in 100 born, die under five years of age. These fearful facts should make mothers more vigilant in watching over their own health and that of their tender offspring, and induce them to acquire a knowledge of the proper methods of bringing up and training them.

vive infancy and childhood, the seeds of disease are often implanted by injudicious treatment at those periods. It is necessary, therefore, to take care of the health at the commencement of existence, if it is desired to attain old age, or to be free from disease. The care of health at these important eras devolves upon parents; and it is their bounden duty to make themselves acquainted with that on which the life and happiness of their offspring, as well as of themselves, mainly depend.\*

The points which are of the greatest moment in the treatment of the young are, diet, cleanliness, clothing, atmospherical temperature, respiration, muscular exercise, sleep, and mental education.

In discussing these subjects it will be necessary to make many statements which are *universally* applicable; the conditions on which the health of children depends being in many cases the same as those that regulate the health of adults.

Nature has provided for every thing in the best possible manner; and to obey its laws is the highest wisdom. The organs of digestion, as well as all the other organs of infants, are imperfect, weak, and easily disordered. The

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\* Parents should not imagine that their concern with the health of their children *commences after* birth. It is certain that the human constitution is generally fixed before that period; and not less so that the health of parents, more particularly of mothers, is the principal circumstance on which it depends. Further remarks on this point will be found in a subsequent page.

organs of mastication are wanting, and therefore solid substances are unfit for their support. The difficulties which might hence arise in the rearing of the young are completely obviated by the opening of a source of nourishment simultaneously with the birth of the child; of nourishment perfectly adapted to its wants, and amply sufficient to furnish it with all needful strength. The only food fit for infants is that which they derive from their mothers; and hence those who are thus supported are generally stronger and enjoy better health than those who are brought up differently. There are certain mysterious affinities between the constitution of a mother and that of her offspring, which in an especial manner render the mother the best nurse of her child; and which it is probable do not exist between the child and any one but the mother; and for this reason children should not be put out to nurse. A few cases there doubtless are, which peculiar circumstances render exceptions to the general rule; but for the most part, this practice must injure both the child and the parent.

Another error, more common than this, is the giving of artificial food too early. The time when infants may be safely weaned varies in almost every individual; but it should be carefully borne in mind, that, for a long period after birth, their organs are capable of digesting only the simplest food: to supply them too soon with any other than that which nature has provided, is to impose upon them a task they cannot perform; and in endeavouring to accomplish which, they are sure to be injured.\*

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\* Improperities in the diet of children are one of the chief

For the same reason, the quantity of food given at any one time ought to be small; infants need therefore to be frequently fed, since it must not be forgotten that *deficiency* in the supply of nourishment at this period is productive of the most disastrous consequences. But errors are seldom made in this direction. Infants are far more frequently injured by *excess* than by deficiency of food.\*

The safest guide in this matter is the *natural instinct* of the child. Never compel an infant to take food after it shews signs of satiety; nor suffer it to be long without food when it is sought for.

After children have passed the period of lactition, their diet should be simple, nutritious, and easily digestible. The activity of all the vital functions in childhood renders an abundant supply of wholesome food indispensable. It is the more necessary to insist upon this, because the appetite of children is frequently attempted to be repressed; and that which is in fact the monition of nature, that a large supply of nutritious substances is needful to carry on the growth and development of all the organs of the body, is disregarded; and thus feebleness and liability to disease are induced.

But though abundant, the food of children ought never

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causes of the diseases which generally accompany the period of dentition, and which might be greatly diminished, both in number and danger, by proper attention to this subject.

\* In the children of the rich we sometimes have striking proofs of the evils of *excess*; and in the children of the poor, examples of the contrary evils arising from *deficiency* of food.



to be given in large quantities at a time ; nor ought they to be allowed to eat till their appetites are cloyed. They should especially be taught the importance of thoroughly masticating all solid substances. The digestibility of food depends greatly upon the degree of mastication which it has undergone: if swallowed entire, or in haste, it remains long in an undigested state, and disorders the stomach.

Every thing that is highly stimulating or difficult of digestion ought to be withheld from children ; not only because their general health is affected by giving them such food, but also on account of the injury inflicted upon the digestive organs. Animal food is stimulating, and ought to be sparingly given. High-seasoned food is still more improper ; and I need scarcely add, that fermented liquors of any kind whatever are little better than poisons. The parent who desires his offspring to enjoy health and long life, will above all things prohibit such articles being given to them.

Unripe fruits are difficult of digestion, and consequently unfit for children ; yet they are often allowed to consume as much as they please. All the food of children ought to be thoroughly cooked.

The stomach, like every other organ, may be improved by proper training, which consists in furnishing it with suitable aliment in proper quantities and at regular periods. Either too great or too little action, or action ill regulated, enfeebles it, and, by deranging its functions, injures the whole economy.

Some explanation of the structure and functions of the *skin* is necessary to enable my readers to comprehend fully the importance of cleanliness, clothing, and the due regulation of temperature.

The skin is that membranous covering which extends over the whole surface of the body, and which, besides performing its specific functions, serves to connect and protect the more delicate parts situated beneath.

It is composed of three distinct layers—viz. the cuticle, or external skin ; the mucous coat ; and the true skin.

The former two are of service principally as shields to the true skin : they are both permeable, and the mucous coat is the seat of the colouring matter of the skin.

The dermis, or true skin, is the thickest of the three layers ; and its functions are of the most important kind. It is abundantly supplied with blood-vessels and nerves, of which, indeed, it may be said to be wholly composed. The capillary branches of the blood-vessels are ramified upon it, and are so exceedingly numerous, that, as is well known, no part of the skin can be punctured with the finest needle without effusion of blood. The point of most practical moment is, that the capillary vessels of the skin are the channels from which that important exhalation—perspiration—is given out, on the regular and uninterrupted performance of which process the health is greatly dependent. Absorption also is carried on by the skin.

The particles which constitute a living body are continually changing. They wear out, or, rather, their nutritious qualities become exhausted ; and they are then re-

moved, to make way for new particles. The channels by which they are removed are various, namely, the lungs, the bowels, the skin, &c. The product of perspiration is this waste matter thrown out of the system, the amount of which is far greater than is commonly imagined. In hot weather, or during great exertion, every one knows that its quantity is considerable; but comparatively few are aware that the process by which it is evolved is going on at every moment when the body is in a healthy state.

Chemists are not agreed as to the exact elements of the perspired matter; but it is well established that it consists of a large proportion of water and of various salts and animal matter.

Let us now see what rules can be deduced from these ascertained facts, for the promotion of the health not only of the child, but of the adult also.

And first in relation to *cleanliness*.

When the perspiration comes to the surface, the watery particles are rapidly evaporated, the more solid substances which were held in solution are deposited upon the skin, and, if suffered to remain, obstruct its pores, thus stopping the perspiration: the effect of which is, to keep in the body a great quantity of noxious matter, deteriorating the quality of the blood, and thereby unfitting it for supporting and nourishing the frame. Moreover, since action is essential to the well-being of every organ, the skin, thus prevented from performing its functions, becomes diseased. Still further: it has been mentioned that the lungs also perform the same office of excretion as the skin; if, then,

the latter is unfitted for its duty, the lungs, having to undertake the office of the skin in addition to their own, are overtasked, weakened, and injured.

Nor is this all: it has been stated that the skin is an absorbing as well as an excreting organ; and thus bodies brought into contact with it are taken into the circulation. If, then, the residual parts of the exhaled matter are permitted to remain upon the skin, they are conveyed back into the blood, and act on it as a poison, sometimes so powerful as to occasion even death. This of course happens, if noxious substances of any kind come in contact with the absorbing surface.

It results from this, that personal cleanliness is a matter of first-rate importance. The entire body ought frequently to undergo ablution; the best mode of performing which is tepid bathing. It is gratifying to observe the attention that is now beginning to be paid to this subject, and the facilities that are afforded to every one for taking care of his health in this direction. But even where these are wanting, the abundance of water takes away every excuse from those who neglect the duty of cleanliness.

These remarks are applicable not only to children, but universally. In reference to them, however, it may be added, that bathing in cold water is frequently fatal, warm water being in most cases preferable. Reasons in support of this doctrine will presently be given.

The next thing to be considered is *clothing*.

The considerations which shew the necessity for *personal* cleanliness prove also the importance of cleanliness in

dress. For as portions of the dress are in constant contact with the skin, they take up the perspiration, and retain many of its impurities, which, as I have before stated, are liable to be absorbed into the system. The linen ought therefore to be frequently changed, particularly in early life, when cutaneous diseases are common.

All parts of the dress ought to be loose, and of a porous texture, in order to give free play to the vascular circulation, to permit the exit of the perspiration, and to absorb it readily. How far at variance with these rules is the dress in this country, of females in particular, it is needless for me to say. One would think that it had been adopted for the express purpose of hindering the development of the body, and of retarding its functions; certain at least it is that such is its effect: few things would tend more directly to increase the well-being of our countrywomen than the adoption of more natural modes of dress.

Another important quality of clothing is warmth; in treating which the subject of *temperature* generally will be discussed.

It has been stated that the vessels which are ramified on the skin, and from which the perspiration proceeds, are those minute branches of blood-vessels which are called capillaries. Now, in accordance with a general law of nature, cold contracts these vessels, so as to render them incapable of admitting the red particles of blood, and frequently closes them altogether. By sudden exposure to cold, the blood circulating in the capillaries is immediately driven in upon the internal organs, which, thus being op-



pressed, are deranged and injured ; by the same means, perspiration being stopped, the task of expelling the waste matter is thrown upon the other excreting organs, which being made to perform greater labour than they are naturally capable of doing, frequently receive permanent and fatal injury. The most usual form that disease, generated by these circumstances, takes in the first instance, is that known as a common cold ; all the phenomena of which arise from the lungs having to perform the duty of the skin in addition to their own : hence the close connexion between colds and pulmonary complaints.

It is a prevalent error to suppose that the constitutions of children are fortified by early exposure to cold ; whence arises the inexpressibly absurd practice of bathing infants in cold water even in the midst of winter. The circulation of infants is almost wholly cutaneous ; hence any severe impression of cold upon their highly sensitive and vascular skin destroys the natural distribution of the blood, producing bowel-complaints, inflammations, and convulsions ; which, if they do not destroy life, at least weaken the constitution, and prepare it for the reception of other diseases.

The researches of Dr. Milne Edwards have conclusively shewn, that to no one cause more than to injudicious exposure to cold is the great mortality of infants to be attributed. The natural heat of young animals is several degrees lower than that of adults ; they lose it more rapidly, and recover it more slowly : the necessity for keeping them always in an atmosphere of considerable elevation, or of

protecting them with warm clothing, is therefore manifest. At the same time, care must be taken not to confine children to very hot rooms, nor to clothe them too heavily. The skin is thereby opened and relaxed; and liability to take cold, at every change of temperature, is occasioned. In this, as in every other matter, the maxim, "*in medio tutissimus ibis*," holds good.

The reason why exposure to rapid changes of temperature is so injurious, is now, I trust, sufficiently obvious; I need not, therefore, enlarge upon the danger of emerging from the heated atmosphere of theatres, and other crowded places, into the cold night-air, unless care be taken to ward off the evil effects of so doing by additional clothing and active exercise. Neglect of these simple precautions frequently gives rise to long-continued coughs, ending in consumption.

It must not, however, be supposed that transition from a warm to a cold atmosphere is alone dangerous; this is a great mistake: passing immediately from cold air into a high temperature is equally injurious; and one of the most common causes of colds in winter is coming out of the freezing temperature of the streets, and going straightway to the fire; a practice which is so agreeable in its immediate effects, that there will, I fear, be some difficulty in persuading many of its impropriety.

Nothing further can be required to shew the imprudence of those who, while freely perspiring, drink large quantities of cold water; or, worse still, plunge into it. Ignorance or insanity alone can excuse these suicidal ac-

tions; yet they are too frequently committed in spite of knowledge and reason.

At every period of life, but more especially in youth, the clothing should be sufficiently warm to keep up the natural heat of the skin. Any thing less than this is certainly hurtful, in the way already pointed out: but by too many persons, particularly by the young, it is considered a mark of manliness and vigour to go through the winter in the same kind of dress as they wear in summer—to adopt more suitable clothing being despised as effeminate. If these *men* knew the consequences of such conduct, they would perhaps hesitate before they preferred the show of manliness, attended with premature weakness and decay, to the appearance of effeminacy, when conducive to health and strength.

As an article of winter clothing, nothing is more useful than flannel: being a bad conductor of heat, it prevents the escape of the warmth of the body, and serves to defend the skin from the effect of sudden external changes. Its rough and uneven surface affords a gentle stimulus to the vessels and nerves of the skin; and being of a loose and porous texture, it is better adapted to absorb the perspiration than any other material in common use.

Before I quit the subject of temperature, I must observe, that sufficient importance is not generally attached to the influence of low temperature upon the health; hence children are frequently in the winter months designedly kept away from the fire, while at the same time they are slightly clad. The consequence of this mistake is, to de-

press the vital energies and weaken the constitution—of which chilblains are a common and painful symptom. In boarding-schools fires are often not begun till the winter has fairly set in, and are discontinued at a stated time, the nominal commencement of spring: by this absurd custom, delicate young females are for a considerable period in each year exposed to a very low and greatly varying degree of temperature; and at such establishments it is too frequently the case that the bed-clothes are far from being sufficiently warm—so much so, that I have heard of girls being prevented by cold from going to sleep for hours.

The next subject which demands our attention is *respiration*.

Some knowledge of the organ is a necessary preliminary to any satisfactory acquaintance with the function. I shall therefore give a brief description of the lungs, the principal organs by which respiration is performed. But previously to so doing, a few words respecting the nature and circulation of the blood are requisite.

Blood is of two kinds, one arterial or red, the other venous or dark; the essential difference between which is, that the former alone is capable of nourishing and sustaining the body; the latter being arterial blood deprived, in its course through the body, of all its nutritive qualities.

Arterial blood is propelled *from* the left side of the heart into the vessels denominated arteries, by which it is conveyed *to* every part of the body; venous blood is poured *into* the right auricle of the heart by the veins which col-

lect and return it *from* the various organs. From this cavity it passes into the right ventricle, which propels it into the pulmonary artery ; and this, dividing into two branches, conveys it to the lungs.

The lungs are two light, spongy, conical bodies, situated within the two lateral cavities of the chest, the bony walls of which surround and protect these delicate organs from external injury. They are almost wholly composed of blood-vessels, bronchi or air-tubes, and air-cells, connected and supported by cellular tissue. The bronchi are ramifications of the trachea or windpipe, by which the air is conveyed into the lungs ; they terminate in the air-cells, on the surface of which the capillaries of the pulmonary artery are ramified ; thus a stratum of venous blood, several hundred feet in surface, is brought into contact with a stratum of air still more extensive, which contact has been proved to be no wise impeded by the coats of the capillaries, or the mucous lining of the air-cells.

It is estimated that one circuit of the blood is completed in about 160 seconds ; so that the whole volume of blood passes through the lungs 540 times in twenty-four hours.\*

But it will now be asked, what is the purpose of this contrivance ? what effect is produced upon the blood by this exposure to the air ?

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\* The pulsation of the heart takes place 100,000 times a-day ; so that the pulse beats about 70 times in a minute :  $70 \times 60 \times 24 = 100,800$ .



The blood in its course through the body deposits its nutrient particles, and receives those which are noxious or useless, and thus becomes incapable of supporting life. Food supplies fresh particles, and air is the agent whereby these fresh particles are vitalised, and the noxious removed.

Atmospheric air is a compound body ; its elements are azote, oxygen, and carbonic acid, the proportions in 100 parts being — azote, 77 ; oxygen, 22 ; carbonic acid, 1. The two former are simple gases ;\* the last is a mixture of oxygen and carbon, and is probably not an essential constituent of atmospheric air.

The proportion which these elements bear to one another in pure air is that which is most conducive to health. If the quantity of oxygen is increased, the circulation is quickened, and symptoms of fever appear ; if, on the other hand, the proportion of carbonic acid is great, it diminishes the vital energy, produces headache, languor, and even death.

When air is respired, its composition is altered ; the quantity of azote remains almost the same, but a large portion of the oxygen disappears, and is replaced by carbonic acid. The consumption of oxygen is regulated by a great variety of circumstances, which it is of little practical importance to detail ; the fact to be carefully noted is, that in respiration oxygen gas is consumed, and carbonic acid gas evolved.

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\* Many modern chemists, however, are of opinion that azote or nitrogen is a compound body, although it has never yet been decomposed. Among these are Berzelius and Davy.

The principal impurity of venous blood is the extensively diffused element denominated carbon, which forms the basis of every variety of the vegetable kingdom. Oxygen has a chemical affinity with carbon, and in certain circumstances these elements combine and form carbonic acid gas. “The great object of respiration is to enable the carbon of the blood to enter into chemical combination with the oxygen of the atmosphere; and that they do combine is certain from the disappearance of both—of carbon from venous blood, and of oxygen from inspired air; that they do form, by this union, carbonic acid, is also certain, from the fact that this acid is generated in proportion as they disappear; and that the superior properties of arterial over venous blood must result from this union, is established from the necessity of arterial blood for the purposes of life, and the necessity of oxygen for the formation of arterial blood.”\*

Since, then, respiration completely changes the constitution of the air, consuming the vital portion, and substituting for it a gas of the most deleterious nature, it follows that a constant and copious supply of fresh air is indispensable to healthy existence.

Were it needful, a long list of fatal events caused by breathing impure air might be given. It will be sufficient to refer to the often-cited catastrophe of the Black Hole at Calcutta; which, dreadful as it was in itself, has yet perhaps been productive of extensive good, by forcibly impressing

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\* Animal Physiology, p. 109.

on men's minds the necessity of paying attention to the laws of nature. Such cases as these, it is true, are extreme ones, and happily of rare occurrence; but the destructive effects of breathing a moderately vitiated atmosphere, though not so appalling, are not less certain. The inhalation of such air may not leave any marked traces of its baneful influence, but slowly and surely, though imperceptibly, it is working evil—the body is weakened and rendered incapable of withstanding the attacks of disease by being deprived of the nourishment of healthy blood: yet, because the process is gradual, it is overlooked, and suffered to go on uninterruptedly. It is evident, from the foregoing exposition of the function of respiration, that every inspiration of impure air must be injurious. Dyspepsia, consumption, and the general deterioration of the whole system, are some of the consequences of continual exposure to bad air.

I will now point out the principal and more common errors committed in relation to this all-important matter.

In the construction of houses and public buildings, there is, for the most part, but little care taken to provide for due ventilation, which is capable of being regulated on the strictest scientific principles.\* Who has not expe-

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\* This observation is especially applicable in London, at least to the theatres, in which it frequently happens that in warm weather nearly all the windows are closed, and in cold weather open. It would be useful to have thermometers hung in various parts of the theatres for the purpose of regulating the temperature.

rienced the ill effects of this neglect, in headaches, flushings, languor, and debility, incurred by attending meetings of large numbers of persons? These evils are caused by the inhalation of air from which much of the oxygen has been abstracted, and which has thus become unfit for the purposes of respiration. Dr. Combe, in his valuable work on Physiology, informs us that, “ During the winter of 1834 an unusual number of courses of popular lectures were given in Edinburgh, many of which were very fully attended. From the utter impossibility of *safe* ventilation, those courses which were most crowded were accessible only at such an expense of health and suffering on the part of their less robust auditors, as served to neutralise in a great measure the advantages which might otherwise have been derived from them. Several of my own friends were compelled to discontinue their attendance; while others persevered, although at the certain cost of a severe headache. This nuisance is the more to be regretted, as it has arisen solely from the architects and the public not having been sufficiently alive to the importance of procuring that prime necessary of life—pure air; and not at all from any difficulty of obtaining it, which could not, *at the first*, have been easily overcome.”

Many persons exhibit a great deal of anxiety to make their houses and rooms air-tight; stopping up every crevice with sand-bags, chimney-boards, and other devices of the same kind, with as much care as if they were endeavouring to exclude some fatal malaria. It is true that drafts are to be avoided; and I would not recommend any



one to occupy a house constructed on the plan lauded in the old Irish maxim,—that a house cannot be healthy unless there is room for a bird to fly in at the windows, and for a dog to creep under the doors; yet it is scarcely less improper to prevent altogether the gradual but constant renewal of the air of our apartments.

It is sincerely to be hoped that more attention will be paid to this subject, and that provision for perfect ventilation will not in future be overlooked by the architects either of private or public buildings. Meantime, persons of delicate health, especially those whose lungs are weak, ought to beware of frequenting numerous and crowded assemblies: the theatre, the ball-room, and other fashionable places of resort, have destroyed many a victim.\*

[ It is still a common practice to surround the bed with heavy close-drawn curtains, as if for the express purpose of confining the impure air around the sleepers; and as in many bed-rooms (frequently the smallest in the house) the usual channels of ventilation, such as chimneys, &c. are wanting, and the doors continue closed for several hours

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\* A German writer has remarked, that persons who constantly frequent theatres never live long; and it has been noticed that members of the House of Commons who have been very attentive to their duties have seldom been long livers: there can be no doubt that the bad air of the House contributed to shorten their lives. And what can be worse than many of the modern club-houses? which, what with the number of water-closets, the smells from the cooking and lamps (often unnecessarily numerous), the



together, it is not surprising that the atmosphere of these rooms should become much vitiated;\* which is probably the chief cause of the languor and drowsiness experienced by many persons on first rising, instead of that buoyant cheerfulness which should be the result of rest and sleep.

Care should be taken to provide for the constant admission of fresh air into sleeping-apartments, which, instead of being the smallest, ought, in reason, to be the largest rooms of the house. At all events, during the day-time they ought to be perfectly ventilated. Perhaps nothing tends more to produce disease among the poorer classes of society than the practice of occupying the sleeping apartments throughout the day—a practice which must effectually prevent the complete renovation of the air, with them the more necessary on account of the confined situations of their dwellings. The custom of keeping dogs and large birds, such as parrots, in dwelling-houses, frequently

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crowded state of the apartments, and the “*aroma*” of the members themselves,—are any thing but wholesome. Yet few attempts are made to remedy this evil by a proper regard to ventilation. Since the publication of this work, considerable attention has been paid to the ventilation of the House of Commons, and a variety of experiments made, which, it is to be hoped, will result in the adoption of some plan that will effectually remedy the evils above alluded to.

\* It is a remarkable fact, that if a canary-bird be hung up in a cage at night at the head of a bed with close-drawn curtains, it will be found dead in the morning.

causes the vitiation of the air to such an extent as to render it exceedingly unwholesome and unpleasant.

Oxygen is indispensable to combustion; so that the effect of fires (especially if coke or charcoal is used), candles or gas-lights, upon the air is precisely the same as that of respiration, but in a greater degree. Where they are used, therefore, attention to ventilation is still more important; express provision ought to be made to carry off directly the impure air which they so plentifully generate.

These remarks are universally applicable; no circumstances whatever can remove the necessity for pure air, although the mode of procuring it is frequently a matter requiring great care.—(*Vide* “Temperature,” *antè*.)

The observations which were made at the beginning of this work are sufficient, however, to shew that attention to respiration is pre-eminently needful during the earlier periods of life, when the processes of nutrition and growth are most actively carried on, and when, therefore, whatever impairs the quality of the blood must be more extensively injurious than when the body has reached maturity. Whenever the weather permits, children ought to be much abroad in the open air—in the fields, or wherever the atmosphere is least mixed with smoke and vapour. Sir John Sinclair observes, that “the great mortality among infants under two years of age in London must, in a great degree, be ascribed to atmospheric impurities; for in the new and improved streets, where the air may be supposed to be better, comparatively fewer children die at an early age than in the old and confined parts of the city.”

The nurseries and sleeping-apartments of children should be large, airy, and well-lighted rooms. They are generally situated at the top of the house—the best arrangement that could be made for ensuring them as free a supply of air as possible.

The impropriety of covering the faces of infants when sleeping with a thick cloth, or of confining their beds with curtains, must be obvious from the foregoing statements.

Before leaving this subject, a few remarks upon the importance of *light* may be properly made.

That light exercises a great and beneficial influence on the body, may be inferred from the ruddy fresh-coloured complexions of those who live in the country, and engage in agricultural occupations, compared with the dull, sallow countenances of miners, criminals confined in dark dungeons, and other persons long secluded from the solar beams; the effect is the same in kind on those who reside in narrow lofty streets. The complexion depends upon the condition of the blood; and it is well known that light co-operates with the oxygen to communicate to the blood its scarlet hue.\*

The presence of light has a most important influence on vegetables: for example, the leaves of plants exposed to the solar rays, while they absorb the carbonic acid of the atmosphere, give off an equal volume of oxygen. In

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\* Vide the chapter on light, containing an account of experiments by Lord Brougham, and remarks by Sir J. Herschel, in the author's *Treatise on the Physiology and Pathology of the Eye*.

the dark, on the contrary, plants absorb oxygen, and disengage carbonic acid. These facts are of themselves sufficient to account for the different effects of night and day air on the human system. They explain also why it is dangerous to fill the bed-room with plants at night—a practice which has often proved fatal.\*

The next subject to be considered is *muscular exercise*.

I shall first give a short account of the constitution of the bones and muscles—the instruments of motion.

The bones are compound in their structure, being formed of an animal and an earthy matter. The animal portion closely resembles cellular tissue; the earthy is phosphate of lime. The former is the seat of the life and growth of bones; while the other communicates to them hardness and the power of resistance.

The proportion which these constituents bear to each other varies greatly. It is not the same in all the bones of the body, nor in every part of the same bone. In early life the animal portion predominates, and in infancy many bones differ but slightly from cartilage; in middle age the proportion is nearly equal; as old age advances, the quantity of animal matter becomes smaller, and the bones more brittle.

Bones are liable to disease, and are sometimes deprived

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\* Some excellent observations will be found upon this subject in the *Flora Londinensis* and *Botanical Magazine* of the author's late uncle, William Curtis, who was not only a celebrated botanist, but an able physiologist.

of nearly all the earthy particles, and thus, losing the power of resistance, no longer serve to support the body.

The uses of bones are various ; but the only one which it is needful for us to notice is, that they afford fixed points for the action of the muscles, and thus aid in the production of motion.

The muscles are those bundles of red compact fibres with which every body is familiar under the name of *flesh*. These bundles are of various sizes, each being distinct and easily separable from the others with which it is connected ; and, as the microscope has revealed, being itself resolvable into exceedingly minute threads, to which anatomists have given the name of filaments, every one of which is furnished with the ultimate branch of an artery, vein, and nerve, by means of which it is nourished and developed, stimulated and directed.

The essential characteristic of muscular tissue is *contractility*—the vital power of diminishing its length—of shortening on the application of stimuli. This is the property that distinguishes it from every other known substance, and the source of its chief use—the production of motion. The muscles acting upon the bones, which are connected by the ligaments, are the sources of all motion generated within the body.

Animal motions are divided into voluntary and involuntary : to the latter class belong those of the heart and the organs of nutrition ; the former comprises locomotion and all external actions : with these alone we have at present to do.



It has been already stated that muscles are abundantly furnished with nerves: one set of nerves conveys the stimulus from the brain to the muscles, and incites them to action; another set carries back to the brain those sensations which indicate the exact condition of the muscles. Nervous influence is indispensable to motion; the power of contraction depending greatly upon the strength of that influence; hence any derangement in the functions of the brain, or nerves, immediately affects the action of the muscles. This is clearly seen in the case of a drunken man, whose movements are weak and irregular, because his brain is disordered. On the other hand, powerful mental emotion sometimes restores the use of limbs which have long disobeyed the will. The gouty man who, on beholding an enraged bull close behind him, sprang over a hedge, and ran a mile, was a striking proof of the influence of the mind over the muscles. It results, then, that the condition of the brain is an important item in the question of muscular exercise: this subject will be fully considered in the proper place.

This account, though it omits many interesting and important particulars, is nevertheless sufficiently full for our purpose; which is to shew the necessity for muscular exercise, and to lay down the rules by which it ought to be regulated.\*

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\* In my Treatise on the Diseases of the Eye I have given, in a condensed form, a connected account of the human frame, and pointed out the uses of every organ, and the intimate relation

To every organ a distinct function is allotted ; the performance of which is essential not only to the general health of the body, but especially so to the health of the individual organ. Appropriate exercise is indispensable to the preservation of its integrity ; and in proportion as it receives too much or too little exercise, or exercise inappropriate or ill-timed, in the same ratio will be its departure from a state of health.

The degree in which muscles answer the purposes for which they are designed is in exact proportion to their strength, or power of contraction ; their strength depends principally upon their size, and this is regulated by the quantity of exercise which they receive. Without going into the physiological proofs of these propositions, it may be enough to refer to the increased size and power of the arms of a blacksmith, or of the legs of an habitual pedestrian.

I shall at present confine my remarks to the subject of the muscular exercise of children.

That such exercise is beneficial to the young in particular may be inferred from the tendency which the young of all animals manifest towards it. Infants, while awake, are in a state of perpetual motion ; as they increase in strength, and their muscles become capable of more power-

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which subsists between all its parts ; thereby setting forth the wisdom and beneficence of its Creator, the perception of which cannot fail to warm the heart of the reader, when he sees how “ fearfully and wonderfully ” man is made.

ful action, they take delight in more varied movements, and grow less and less able to endure restraint. It may be as well, however, to state briefly the principal benefits derived from well-regulated muscular training.

The first of these is increase of size and power in the parts exercised. When an organ is exercised, the processes of waste and renovation proceed more rapidly than when it is inactive ; a result brought about by the increased action of the arteries and nerves by which it is supplied.

But though this is the immediate result of muscular exercise, it is not the only one : exercise conduces to the due performance of several important functions, and exerts a beneficial influence over the whole system.

Most arteries are deeply imbedded among muscles, every contraction of which, therefore, by pressing upon them, assists the circulation of the blood, especially in the smaller vessels, and accelerates its return from the extremities. The value of this assistance may be estimated when we consider the evils of languid circulation, to which persons of sedentary habits, especially females, are liable, —such as swollen extremities and varicose veins, besides more extensive injuries which arise from a sluggish circulation.

The quicker the circulation, the greater is the quantity of blood which, in a given time, passes through the heart, the lungs, and the organs of secretion, as the skin, the liver, and the kidneys ; the greater, therefore, is the amount of exercise which these important organs receive : the consequences of which are, the strengthening of the

organs themselves, the more perfect purification of the blood, and its consequent greater fitness to nourish and develop the entire frame.

If to these advantages we add the assistance which muscular exercise gives to the organs of respiration and digestion, it will be evident that nothing is more calculated to preserve the health and conduce to longevity.

The infant's first mode of progression is crawling; and it is the mode best suited to the condition of its bones and muscles, and calls them all equally into action. The bones are soft and flexible, the muscles weak; so that neither the bones nor the muscles are capable of supporting the weight of the body. Many persons inflict permanent injury upon infants, by making them stand upon their feet, and walk upright, before their limbs are sufficiently strong: the consequence is, that the bones of the legs bend beneath their burden, the muscles become shorter on one side than on the other, and thus the efficiency of both is impaired. To this cause must be attributed the prevalence of deformities of the lower extremities.\*

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\* Children's feet are sometimes distorted at their birth, and turned in a wrong direction. This often arises from a faulty position of the child *in utero*, and may, in many cases, be easily remedied by bringing the limb as near as possible to the natural position, and keeping it there by the proper application of bandages. Mothers should take care that their children's shoes are sufficiently large; if they are tight, the foot is cramped, and permanent lameness is sometimes the result.

It is obvious, from these considerations, that *leading-strings*, and other devices of the same kind, cannot be otherwise than hurtful. By constraining an upright position, they keep the weight of the whole body upon the spine and legs, which, unable to sustain the load, deviate from their natural form, and become permanently distorted.

The first requisite, then, of healthy exercise is, that it be the kind adapted to the condition of those by whom it is taken; this adaptation is discoverable by the voluntary movements of each individual; since exercise disproportioned to the strength of the organs by which it is performed, produces pain, and therefore, if voluntary, is at once discontinued.

That exercise may be as beneficial as possible, it must be taken in the open air. One great good of exercise is, that it invigorates the respiration; the capacity of the chest is enlarged during active exertion; and the quantity of air inhaled is greater than at other times. Yet, unless the air is pure, the advantages resulting from this circumstance are considerably lessened.

But there are some states of the atmosphere during which it is impossible, or improper, to be out in the open air; in such cases, children ought to be sent into a large, well-ventilated room, and permitted to engage in such pastimes as they may themselves choose; and the more varied, noisy, and cheerful these games are, the better.

It must not be thought that the kinds of exercise which are suitable for adults are the best for children also. A



steady walk is of little use to those whose spirits are exuberant, and whose muscles are soft and pliable. Restraint, in these cases, is unnecessary and hurtful. It is almost impossible to induce a child to walk steadily along; it is ever making excursions from one side to the other, as it is attracted by the various objects that present themselves. This rambling propensity is loudly condemned by many mothers and nurses,—a proof either of ignorance or of love of ease; for this is the only efficient mode in which children can exercise their muscles and bones, and lay the foundation of a long and healthy life.

Nor is there any ground for fear of injury from this vivacious activity. It is, of course, indispensable that the places provided for children should be of such a nature as to prevent the occurrence of accidents: in summer, a level field, in the soft grass of which they may fearlessly roll their yet tender limbs, and in which their undeveloped faculties may be delighted and called into exercise by the various objects of nature by which they are surrounded; in winter, a well-carpeted room, unencumbered with furniture: these, or such as these, are the appropriate places for the young; which provided, nothing else is required to render the unrestrained gambols of children perfectly safe, save the presence and control of their attendants.

The influence of the nervous system upon the muscles has already been slightly noticed. A little observation would be sufficient to convince every one that the mind is the grand director of the muscular movements, and that its varied states manifest themselves by corresponding

actions. If this harmony be destroyed, but little benefit can be derived from muscular exercise. The mind must accompany and be in unison with the body.

Children are naturally cheerful; and their lively, rapid movements accord well with this mental state; both being admirably calculated to promote their bodily and mental well-being. Let not the careful mother restrain these expressions of happiness, — themselves the *sources* of further happiness.

Another characteristic of childish exercise is noise—screaming and bawling invariably accompany it; and if such expressions of delight are prohibited, the children cannot proceed with their diversions. Here, as every where, we may discover the wisdom and beneficence of the arrangements of nature. This noise, which to the adult appears so useless, and being to him a source of annoyance is forbidden, is produced by the exertion of those delicate organs—the lungs. By this exercise they are developed and strengthened, and rendered capable of resisting the morbid influences to which they are, in our variable climate, peculiarly exposed.

I have not attempted to lay down any precise rules for the exercise of children; these, though necessary when the subjects of discourse are adults—persons freed from the dominion of instinct, and governed by considerations wholly unknown to the young, and frequently interfering with the preservation of health—are needless in relation to childhood. This distinction is too often overlooked; because men cannot trust to their instinctive feelings in regard to

health, it is too hastily inferred that such is the case with children also. It is forgotten, or unknown, that the latter, not yet having the superior endowment of reason, possess much of that instinct for which the lower animals are remarkable; and that all that is necessary is, so to control and direct their spontaneous actions as to prevent them leading to mischievous consequences. It will be seen that this is the principle on which all that I have said on the muscular exercise of children depends; and I am convinced that attention to it would greatly improve the management of the young.

These observations are, for the most part, applicable to the subject of sleep. Sleep is the repose of the brain; and, as every body is aware, is indispensable to the preservation of health. During sleep the vital energy, exhausted by the previous excitement and action, is restored; and the process of nutrition goes on more rapidly and completely than in the time of active exertion. In infancy and childhood, the brain, the source of vital energy, is weak and unformed, while the greatest demands are made upon the organs of nutrition: hence, at those periods of life, there is a greater need of, and *therefore* a greater disposition to, sleep, than in those which succeed. The proper quantity of sleep must be determined by this disposition; in general, it is injurious either to increase or diminish it by artificial means. It will suffice, on this point, to say, that ten or eleven hours is considered to be the proper quantity for children under the age of eight years.

We have now arrived at the last, most important, yet least-understood subject in the treatment of the young, to which I proposed to direct attention—viz. the effects of education upon their health.

In this place I shall state the results of the labours of physiologists respecting the functions of the brain, and its influence upon the body. These results constitute the principles from which all the practical rules upon the subject of the mind, in relation to health, must be derived. I shall then proceed to lay down such of these rules as immediately affect the young under the age of ten years.

Whatever opinion may be entertained respecting the peculiar doctrines of phrenology, there can be but little doubt as to the soundness of its fundamental proposition—"the brain is the organ of the mind"—a proposition, indeed, which was maintained by distinguished men long before the promulgation of the theory of phrenology; and which has *since* been, and *now* is, held by philosophers who have scarcely any other opinion on the subject of the mind in common with phrenologists. To prove this fact it will be enough to refer to the writings of Locke\* and Hartley,† of Mill‡ and Southwood Smith,§ *all* of whom *impliedly*, and the majority *expressly*, admit the doctrine in question; which I shall therefore not here attempt to prove,

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\* Essay on Understanding, in various passages.

† Observations on Man. Propositions 1 and 2.

‡ Art. Education, Encyc Britannic.

§ Philosophy of Health, vol. i. chap. 6.

but assume to be established. If, however, any of my readers require proofs, they will find the arguments in its favour briefly and lucidly stated in the valuable little work of Dr. Brigham, on the Influence of Mental Cultivation and Excitement upon Health, section 1.

The following remarks, then, proceed on the assumption, that whatever exercises or excites the mind affects the condition of the brain, and, through it, the *general health* of the body,—for the manifestation of the mental faculties is not the only function of the brain. Of such of its other varied and important functions as bear upon our subject it is necessary now to give some account.

Nervous influence appears to be indispensable to the performance of every function, whether animal or organic ; hence the nerves, the channels by which it is conveyed from the central nervous masses, are diffused as extensively over the body as the vessels which distribute to every organ that not less necessary fluid, the blood ; between which and the nervous influence there is this further analogy—that they are both variable in quantity and quality ; variations which materially affect the condition of the system.

It is true, that very little is known of the nature of the nervous fluid—being imperceptible, its existence is discoverable only by its effects. That, however, it does exist, and is essential to the carrying on of function, is nevertheless conclusively demonstrated. If the main trunk of a nerve be divided, and the cut ends held more than a certain distance apart, the organ which it supplies becomes powerless, and is no longer affected by the appropriate



stimuli. Take, for example, the pneumo-gastric nerve, which goes to the muscular coat of the stomach: if this nerve be severed in the way mentioned, the contractions of the stomach cease, and the process of digestion is stopped; as has been proved by actual experiments on dogs and other animals.\* But if the cut ends of a nerve be left nearly in contact with each other, the flow of the nervous fluid goes on without interruption. It appears, also, that if a nerve be tied tightly, the effect is the same as if it were divided.

These facts clearly prove that the nerves are not the *sources*, but merely the conductors of the nervous fluid, which proceeds from the spinal column and the brain; with the last of which, as being far largest in bulk, and as performing functions of a more diversified and important kind than the other, we have principally to do.

When any part of the body is actively exercised, an increased flow of blood and of nervous energy is occasioned to that part. Powerful action is indeed impossible without a large supply of nervous influence; the quantity of which sent to those organs placed under our immediate control being determined by the *will*.

“But,” to use the words of the distinguished Bichât, “it is a fundamental law of the distribution of vital

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\* This and similar facts were demonstrated some years since, when Professor Magendie was in this country, who made several experiments on greyhounds and other living animals, at the late Joshua Brooks's theatre.

powers" (of which the nervous energy is one), "that when they are increased in one part, they are diminished in all the rest of the living economy: that the *sum* is never augmented, but that they are necessarily transported from one organ to another; and therefore, to increase the powers of one organ, it is absolutely necessary they should be diminished in others." For example, while an individual is engaged in active muscular exercise, the blood and nervous fluid are withdrawn from the internal organs, and poured into those of locomotion; if, while in this state, he attempts to think intently, he will find it next to impossible to do so: or if, immediately after his exertion is over, he sits down, and eats a hearty meal, the stomach will not be able to digest it readily, because it is destitute of its proper share of blood and nervous influence. But when the increased action of the vessels and nerves of the muscles has subsided, and the balance of distribution has been restored, then the stomach will be equal to its duties.

When the mental faculties are much exercised, the nervous influence is concentrated in the brain, and consequently withdrawn, to the same extent, from the rest of the body.

We come now to inquire what is the condition of the brain in infancy and childhood; and what rules are to be observed in regard to mental cultivation at those periods.

The brain of a newly-born infant weighs about ten ounces; it is very soft, approaching to liquidity, nor are its parts distinguishable; yet it is now supplied with a

larger quantity of blood, in proportion to its bulk, than at any after-period: it increases rapidly in size and firmness; its weight is nearly doubled at the end of the first six months; and thus the nervous system is early developed, and becomes the predominant system in youth.

“This great and early development, though necessary for the purposes of the animal economy, very much increases the liability to disease: it gives a tendency to convulsions, inflammations, and hydrocephalus, and to other diseases of the nervous system, which are most common and fatal in childhood.”\*

If, then, the infant's faculties are prematurely called into exercise; if the parent, eager to impart early the rudiments of scholastic education, compels the child to spend its energies in the acquisition of tasks and lessons, or if its feelings are exposed to powerful excitement, the injurious consequences will be twofold: first, the nervous energy, at this time so necessary for the building up and perfecting of the body, being expended in fruitless intellectual exertions, all the organs of the body become weak and liable to fatal diseases: in the second place, the brain, by reason of the increased flow of blood to it, occasioned by mental excitement, enlarges unnaturally; by this means the nervous system, already powerful, receives an accession of strength which completely destroys that balance between the various systems of which the body is composed, which is indispensable to health, and even to existence.

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\* Brigham, p. 24.

As to the first of these evils ; it is certain that, by unduly exercising any one organ, or system, in childhood, thus depriving all the others of that cultivation which they require, the favoured part is too greatly developed, and prematurely decays ; whilst those which are condemned to inaction are stunted, become feeble, and often lose their vital powers. The truth of these statements will be established by reference to the well-known fact, that those children whose mental powers are too early cultivated seldom or never possess healthy bodies, or arrive at maturity. The causes of this result are, the expenditure of the nervous energy on the brain, and the disproportionate quantity of blood sent to it, with the consequently inadequate supply of those vital fluids to the other organs.

Of the second class of evils, some are immediate ; others consist in creating predispositions to disease, which do not at once attack their victim, but suffer him to make some progress towards maturity, and then suddenly cut him off. To the former belong rickets, scrofula, convulsions, inflammation, and dropsy of the brain ; to the latter, insanity, hypochondriasis in all its various forms, diseases of the heart, and dyspepsia.

The proof that some of these diseases result from over mental exertion will be given in a subsequent part of this book. At present we will leave the subject, by laying down a few general rules deducible from the foregoing statements.

The first years of life should be directed to laying the foundations of health, which are the foundations of happi-

ness. Nature plainly declares that this is not the proper time for devoting the mind to the incessant labour of scholastic education ; that the faculties of the child must be permitted gradually to increase in strength by means of the exercise which the varied aspects of nature and the companionship of its equals in years afford. Let the fond parent, who desires his child to excel in intellectual attainments, and therefore urges on his feeble powers to accomplish tasks to which they are unequal, be aware how vainly he strives. Suppose the object gained, of what avail are the most splendid acquirements, if they are made by the sacrifice of *health* ; without which they cannot be turned to good account, either for his own benefit, or for that of others ? Besides, although it is possible so to develop the powers of the child as to make him outstrip, for a time, all his juvenile companions in the acquisition of knowledge, yet *ultimately* the actual amount of knowledge possessed, and the capacity of enlarging it, will be smaller than if the dictates of nature were obeyed ; for the powers of the mind are thus worn out long before the period at which, in other circumstances, they would arrive at maturity : they become incapable of further exertion when they should be in their highest vigour. There are few instances indeed on record of precocious children who, on arriving at maturity (which but few of such prodigies have ever attained), did not disappoint the fond expectations of parents and friends ; while, on the other hand, many of the most distinguished men in every department of science and literature have



been remarkable in their childhood for dulness and incapacity to learn.\*

The parent who is so unfortunate as to have a precocious child, ought, as he desires his offspring to live and be happy, by all judicious means to discourage the child's propensity to mental exertion. Precocity is, in almost every case, a symptom of disease—of disease which is nourished and strengthened by excitement of the brain; and which can be overcome only by suffering the mind to enjoy tranquillity, and by strengthening the body to resist the attacks of the disease.

The following extract, from the work of M. Julien on

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\* Among these may be mentioned Sir Isaac Newton, who himself says that “he was inattentive to study, and ranked very low in the school, until the age of twelve;”—Napoleon, who is described by those who knew him well in his childhood, as “having *good health*, and in other respects being like other boys;”—and, not to multiply examples, Adam Clarke, whose talent, when at school, appeared to be confined to the rolling of *large stones*, his character being that of a grievous dunce;—the Rev. Dr. Lee, the present professor of Arabic in the University of Cambridge, who, up to the age of four-and-twenty, was a journeyman carpenter;—and the present able lecturer at the Royal Institution, Dr. Faraday, who was brought up as a bookbinder. These examples are sufficient to shew, that it is to self-education, rather than to that which is communicated at school, that eminence in the intellectual world is chiefly to be ascribed.

education, will appropriately conclude these remarks on the effects of education upon the young.

“The course to be adopted for the first ten years of life, is, neither to oppress nor torment them ; but, by plays, exercise of the body, entire liberty wisely regulated, and good nourishment, to effect the salutary and progressive development of the physical, moral, and intellectual faculties, and, by continual amusement, and freedom from chagrin (which injures the temper of children), they will arrive at the tenth year without suspecting that they have been made to learn any thing. They have not distinguished between study and recreation ; all they know, they have learned freely, voluntarily, and always in play. The advantages obtained by this course are, good health, grace, agility, gaiety, and happiness ; a character frank and generous ; a memory properly exercised ; a sound judgment ; and a cultivated mind.”

It may not be improper to offer here a few remarks on education in general ; a subject which may at first sight appear to have little to do with the objects of this book, but which is in reality intimately connected with them.

National education has of late taken a prominent place in public attention, and is constantly becoming more and more a subject of general interest, as, on account of its paramount importance, it well deserves to be ; inasmuch as no other question bears more directly upon the well-being, physical, intellectual, and moral, of the community. A good system of national education, liberal, enlightened, and comprehensive, may be regarded as the only sure

foundation of national and individual prosperity and happiness ; the institution and carrying out of which would speedily bring in its train all other beneficial changes, and transform the whole face of society, merging all parties and classes into one great community—one, not only in name, in language, or in laws, but one in sentiment, in interests, and in fraternal affection. If ignorance is the source of all evil, of hatred, dissension, and misery ; knowledge is no less surely the source of love, of brotherly unity, and of happiness.

A truly good system of education must provide not only for the communication of knowledge, but also for training the faculties of the mind, for teaching self-control, and the due regulation of the passions ; thus it becomes, even though no direct moral or religious instruction be given, a most efficient means of diffusing true morality and religion throughout all classes.

It is to be lamented that in our country we have as yet no such system—that we have been far outstripped in this important work by Holland, Germany, France, the United States of America, and by other countries, which have provided means for giving to every one of their inhabitants, rich and poor, an education such as members of the most favourably circumstanced classes in our own but seldom obtain. Let us hope, however, that this defect will not long continue ; but that we shall shortly see the establishment here of a system of education which shall enable those who participate in it to attain the utmost perfection of which they are capable.

It is of course impossible for me in this place to enter into any details respecting this subject; I may, however, add, that the objections to making it compulsory on parents to educate their children appear to arise from prejudices peculiar, in some measure, to our country, and from a misconception of the question. In regard to the subjects which ought to be taught in a national system of education, it is much to be desired that *physiology* may be included. The importance of an acquaintance with the structure of our frame, as a means of preventing disease, has already been insisted upon in the Introduction to this book; nothing more need, therefore, be said to shew the necessity for imparting such knowledge to the young. The influence of *music* upon the mind is so refining, and tends so much to beget feelings of kindness and benevolence, thus beneficially affecting the health, that no system of education can be considered complete which does not provide this important means of moral training. Music is taught in most schools on the Continent; and on no occasion have I ever witnessed a more gratifying application of the soothing and cheering power of harmony, than at the Blind School of Berlin, which I visited in company with M. Saegert, the director of the Deaf and Dumb Asylum in that city; and where I heard a variety of fine pieces, played on wind-instruments by a band of more than twenty lads; whose accurate performance shewed how much they were interested in it, and consequently how great a source of pleasure it must have been to them. Shut out, as they were, by their calamity, from one of the most extensive

classes of enjoyments, they seemed to be more capable of deriving pleasure through the medium of their unimpaired senses. It is, as I conceive, to the general attention paid to early musical education in those countries, that the superiority of the Germans and Italians over ourselves in this science is mainly attributable. Besides, are we not, equally with them, Saxons, and members of the great Germanic family, and are not, therefore, our natural capabilities originally the same? The notion that our countrymen have comparatively no "ear for music" is an unfounded prejudice. Our actual inferiority arises solely from the want of cultivation.\* It is scarcely less to be wished that such improvements were effected in the *law*, as would render it so simple and concise, that a knowledge of its leading principles, and of their more important practical applications, might be communicated to the young at school, to guide them in after-life in the performance of their social duties.

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\* I rejoice to be able to state, that since the publication of the last edition of this work, several important steps have been taken to diffuse a knowledge of music in this country, and that the Committee of the Privy Council on Education appears disposed to use its influence for the promotion of this useful object.



## CHAPTER II.

## YOUTH.

Transit in æstatem post ver, robustior annus,  
Fitque valens juvenis: neque enim robustior ætas  
Ulla, nec uberior, nec, quæ magis æstuet, ulla est.—OVID.

WHEN childhood merges into adolescence—that is, when the body has attained the degree of development which it generally does between the age of fourteen and seventeen, it is of course necessary to accommodate the treatment of the individual to the changes that have taken place in the condition of his frame. An attentive reader of the previous part of this book will have no difficulty in discovering how far the management of the child is suitable for the youth, and in what respects it needs to be altered. The directions that I have laid down for the due regulation of cleanliness, clothing, temperature, respiration, and sleep, in relation to infants and children, are applicable, in their fullest extent, to those who are in the immediately succeeding period of life. But, in respect to diet, muscular exercise, and education, the case is otherwise: it will therefore be necessary, on these and some other subjects, to give special rules for the proper training of youth.

In this place it is requisite that I should lay before my readers a few remarks on the physiology of digestion.

It is hardly necessary to observe, that the use of the various processes which have collectively received the name of digestion, is, to make up for the waste which is constantly going on in every living being, by the assimilation of foreign substances to the blood: the product of digestion is blood, the quality and quantity of which is mainly dependent on the proper regulation of diet, and on the integrity of the digestive organs.

In a healthy condition of the body the sensations of hunger and thirst are the warning of nature that a supply of aliment is requisite; and, taking this view of their use, the wisdom of the arrangement by which we are made to experience them is strikingly evident; for man, immersed in the occupations of life, would doubtless often fail to pay attention to the wants of his body, and thus cut short his existence, were he not by these monitors compelled to supply them. And as the force of these sensations is naturally indicative of the exact amount of food required, they furnish most valuable direction as to diet at every period of life.

One of the most important agents employed in the function of digestion is the gastric juice (so named from *γαστήρ*, *the stomach*); a fluid which is secreted from the blood-vessels of the stomach, and is one of the most powerful solvents known, dissolving and reducing into a soft thickish pulp whatever is taken into the stomach as food, but exerting no power over living or inorganic matter.

Dr. Beaumont, of the American army, has, with praise-

worthy assiduity and skill, availed himself of an opportunity, such as rarely occurs, to investigate the mysterious processes of nutrition; having during many months, for this purpose, supported at his own expense a man who had received a gun-shot wound, by which a considerable portion of the ligaments and muscles of the abdomen were carried away, and the coats of the stomach perforated, leaving an opening, which never wholly closed; thus revealing to ocular inspection the functions of the stomach. From his observations it appears that the quantity of the gastric secretion is always in exact proportion to the quantity of aliment required by the system; so that if more than this be consumed, the supply will be insufficient to digest the whole. Bearing in mind what has been said respecting hunger, it will be seen that this fact renders highly probable the opinion of those physiologists, who hold that "the sensation of hunger is an impression produced upon the nerves of the stomach, through the intervention of the gastric juice, in a manner perfectly analogous to the action of light upon the retina. As light is the appropriate stimulus to the nerve of the organ of vision, so gastric juice appears to be the appropriate stimulus to the sentient nerves of the stomach."\*

It has been established by the researches of physiologists, that the qualities of the gastric juice bear a close relation to the kinds of food habitually taken. The stomach of a herbivorous animal is, at first, incapable of

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\* Animal Physiology, p. 30.

digesting animal food ; while that of a beast or bird of prey is equally unable to digest vegetable matter. But here, as in most other cases, habit exerts great influence : if the food is gradually changed, the properties of the gastric juice are essentially altered, and fitted to act upon it. Delabere Blaine states, that a horse lived for some time on animal food alone.

In man the qualities of the gastric juice vary considerably—the kind of food, the state of the health, the season of the year, modify its properties ; a fact which shews that rapid and frequent changes in diet are to be avoided, as well as sameness or uniformity.

It is a great error to suppose that a diet composed of a single kind of food, however nutritious in itself, is one conducive to health. “ Many observations and experiments,” says Dr. S. Smith, “ shew that in man, at least, a mixture of various diet is not only consistent with health and vigour, but is highly conducive to both. This point is abundantly illustrated by Dr. Stark, of Vienna, who ultimately fell a victim to the zeal with which he prosecuted his researches ; and who made himself the subject of a highly curious series of experiments upon the relative effect of various simple substances, when used exclusively as articles of food for a long space of time. The result shewed that the body is invariably brought into a state of extreme debility by such a course of diet ; and that there is not a single article of food, not even the most nutritious, that is capable of sustaining the vigour of the body, or even of maintaining life itself, for any considerable period. By

selecting, one after another, single and simple articles of food, and by confining himself exclusively to one, this experimentalist so irretrievably ruined his health, as to bring on premature death."

The only other general observation which I shall at present make upon this subject is, that a large supply of nervous energy and of blood is indispensable to the carrying on of digestion; hence the impropriety of taking food immediately after active muscular exertion, or intense thought; and also of engaging in either within the first hour after a meal, during which time digestion proceeds most rapidly and vigorously, and when, therefore, the greatest quantity of blood and nervous influence is required to carry it on. These facts account for the languor and disinclination to powerful action which most animals—men not excepted—display after a heavy meal. A gentle walk, or cheerful conversation, on the other hand, are aids to digestion; at the expiration of about an hour after an ordinary meal, most persons may safely engage in their usual employments.

I shall now make such applications of these principles to the diet of youth as are needful.

The keen appetite of the young is a proof that they require an abundant supply of wholesome food; and the digestive organs at this period are so vigorous, that little restriction is needed as to the kinds of food. But food of a stimulating nature ought still to be given sparingly, as well as nourishment in too concentrated a form. It is indispensable to the health of the bowels, that they per-



form their appropriate functions: but if highly nourishing food, such as animal food, is given too abundantly, the quantity of refuse being too small, constipation and other diseases of the bowels result; to prevent which, well-cooked vegetables should form a large portion of the food of the young.

It must not be forgotten, that deficiency of food at this time is productive of the most injurious consequences. If the youth is healthy, his appetite ought never to be left unsatisfied; and, although it must be given with limitation, animal food is also necessary.\* As for other stimulants, as wine, or fermented liquors of any kind, they cannot but be hurtful as articles of diet, and ought on no account to be allowed. The taste at this period of life naturally prefers simple food; and provided it be substantial, and of a sufficiently varied kind, the plainer the better.

It is evident, from the foregoing observations, that young persons at school ought not to be tasked too soon after their meals: they ought to be allowed to amuse themselves by cheerful conversation, or gentle pastimes;

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\* Boarding-schools, for both sexes, are the places where this rule is most disregarded. In the schools of France, a great part of the food of the young consists of broths, in which there is but little nourishment. "A dog was fed on the richest broth, yet could not be kept alive; while another, which had only the *meat boiled* to a chip (and water), thrived very well."—*Sir John Sinclair's Code of Health.*

instead of being, as they too often are, hurried from the dining-room to the school-room, with scarcely a minute's relaxation. "Laughter," says Hufeland, "is one of the greatest helps to digestion with which I am acquainted; and the custom prevalent among our forefathers, of exciting it at table by jesters and buffoons, was founded on true medical principles. In a word, endeavour to have cheerful and merry companions at your meals: what nourishment one receives amidst mirth and jollity will certainly produce good and light blood."\*

Any directions that I may deem necessary respecting the *quantity* of food will be found in that portion of this work which relates to the middle period of life. In childhood and youth a healthy appetite is the best of all guides, nor is any other required. But there is one rule, which ought to be universally observed—never continue to eat until the appetite is cloyed; rise from the repast even while a further supply of food would be grateful: in this case the stomach is not overloaded, and the work of digestion proceeds rapidly; but if this caution is neglected, a portion of the food will remain undigested for a long time, and give rise to many evils: the reason of which is shewn by Dr. Beaumont to be the deficiency of gastric juice; the quantity of which secreted, at any one time, being in proportion to the wants of the system, not to the quantity of food taken.

It is to be noticed, that the word *healthy*, as applied to

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\* Art of Prolonging Life.

appetite for food, means that state of the appetite which is in accordance with the condition of the body; it is therefore a relative, not an absolute term. The appetite of a person in a fever is naturally small: if it were otherwise, it would be an *unhealthy* appetite; because it would represent the state of the body to be different from what it really is. And, on the other hand, if a person in good health, and taking much muscular exercise, should have but little appetite for food, his appetite would be unhealthy also.

From this it results, that the appetite may be trained, and, by improper diet, be so perverted, as to be no longer a trustworthy index to the bodily condition. Excess of food is the means by which this result is most frequently brought about. By habitually eating or drinking more than is needful, many persons acquire an unnatural appetite, and thus turn that which was intended to guide them to health into a deceitful and destructive enemy. The evil consequences of repletion will be pointed out in another place.

Muscular exercise is essential to the preservation of health in this as well as in every other period of life: having already shewn its advantages, I shall in this place merely mention some of those exercises which are best adapted for young persons of both sexes; and give such rules as ought to be attended to, in order to make them as useful as possible.

Whatever description of exercise is taken, it is always best in the open air, when the state of the weather per-

mits; and those active out-door games, in which many persons join together, and which are attended with shouting and laughing, calling into action a spirit of interest and emulation, thus making the mind accompany the movements of the body, are far more conducive to health than a solitary silent walk. Of this kind are many of those sports in which those who are engaged divide themselves into two parties—the one pursuing and endeavouring to overtake the other, and, in their turn, becoming the pursued party,—cricket, tennis, prisoners' bars, and dancing, when performed in the daytime, and either in the open air or in large airy rooms—for as it is usually practised, during the hours which should be devoted to sleep, and in rooms the air of which is utterly unfit for respiration, it is a most destructive amusement. If to these we add gentle gymnastic exercises of various kinds, skipping, shuttlecock and battledore, ball, &c. &c., we shall have a list of exercises which, if properly indulged in, will be amply sufficient to develop all the muscles of the body, and give grace, vigour, and strength to the entire frame.

Boys are seldom injured by want of sufficient exercise; they are left more entirely to follow their inclinations, and are not, as is the case with girls, hedged in on every side with rules of gentility and decorum, which repress all tendencies to free and rapid motion, and make the movement of a party of boarding-school ladies more like a funeral procession than a number of young persons taking exercise and recreation. The slow pace at which it is con-

sidered genteel for ladies to walk, affords exercise hardly sufficient to quicken the circulation of the blood, or to increase the warmth of the body, and is therefore almost entirely useless.

To make the above-mentioned exercises beneficial, they should be subjected to the following rules:—

Never continue any exertion after it *fatigues*. There is a point beyond which exercise, instead of invigorating, weakens: this point may generally be known by the feeling of fatigue which denotes it.

Never indulge in *violent* exercises, especially in summer. The consequence of neglecting this rule is profuse perspiration, followed by loss of animal heat, and a feeling of chilliness at the extremities,—a symptom never to be disregarded. Moderate exercise gently stimulates the circulation of the blood, creates an agreeable warmth, enlivens the mind, promotes digestion, respiration, and nutrition; and thus strengthens both the bodily and intellectual powers.

An able writer upon the subject, speaking of violent exertion, truly says: “ It did great harm, even when nations were more in a state of nature than they are now. Galen, in his discourse on Thrasybulus, inveighs against the athletic practices of the gymnasium. A smart walk of a mile is to a valetudinarian, what a furious wrestle would be to an athletic. If we trace those dreadful aneurismal affections of the heart and arteries in early life, we shall find their origins in violent exercise, or sudden over-exertion, in nine cases out of ten.”



Young persons should remember that they are still growing; that their organs are in a state of progression, not yet having attained their full development; and that therefore those exercises which are proper and beneficial for the adult may seriously injure them. A single day of excessive exertion has been known to stop the growth of young persons, and induce permanent weakness and ill health.

It is not unusual for boys, after playing at cricket, or other active games, to sit down on the grass while yet profusely perspiring; by which they often contract very severe colds, laying the foundation of much mischief—one of the forms of which is deafness. Girls should be cautioned against going to a window, or into any draft of cold air, immediately after dancing; an imprudence which produces evils of the same kind as those above mentioned. While I am on this subject, I may mention another fertile source of disease among young females—viz. the folly of wearing thin shoes and stockings at those seasons of the year when especial care ought to be taken to protect the extremities from cold and damp.

For youth of both sexes, cold bathing in summer, and tepid in winter, is highly useful, and ought to be frequently indulged in; but great care is to be observed that bathing in rivers be not commenced too early in summer, before the water has acquired a proper degree of temperature; and, at all times, that there be not too great a difference between the temperature of the body and that

of the water. Exposure to great and sudden varieties of temperature is always dangerous.\*

Swimming is an exercise which calls into active exertion all the muscles of the body, and is therefore one tending much to strengthen the frame; but it ought not to be continued long at one time: the slightest sensation of weariness should be the signal for leaving the liquid element, and retreating to terra firma. To remain in the water after this monition, is not only to throw away all the benefits of the previous exercise, but to induce an exhaustion of strength so great as sometimes to prove fatal.

It is truly gratifying to observe the facilities that are daily springing up for enabling even the poorer classes of society to participate in the enjoyments of the bath: an enjoyment which has hitherto, in our country, been regarded as a luxury, and attainable only by the affluent, but which is in reality a *necessary* of healthful existence, and which therefore ought not to be confined to any one class of the community.†

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\* Tepid bathing is perfectly safe even in the middle of winter: if on emerging from the bath, the body be rubbed completely dry, and active exercise be taken, no one need fear any ill consequences. It should, however, be added, that bathing is not in every case useful; there are many states of the system in which it would prove highly injurious. Delicate persons ought, therefore, to act with great caution in this matter.

† An account of all the principal baths in the metropolis is given in a subsequent part of this work.

I have already alluded to the truly absurd and pernicious practice—by no means confined to the softer sex—of encasing the body in garments which shackle every movement of the muscles, diminish the capacity of the cavities of the chest and abdomen, and thus effectually stop the development of the frame, and prepare it for the ready reception of many fatal forms of disease. These evils have been so repeatedly demonstrated, and so strongly denounced, by men of the first eminence in the medical profession, that it is surprising and lamentable that any necessity should exist for me also to raise my voice against them.\* Let those who care not for health and life—who willingly sacrifice them both at the shrine of false taste and fashion—persist, if they will, in this destructive custom; but let those, at least, who entertain juster views of the relative importance of happiness and fashion, boldly abandon a practice which is opposed by all who can best appreciate its consequences.

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\* I do not, however, ascribe all the ill health of females to wearing tight stays; other injurious habits concur to produce that hysterical and hypochondriacal state of the system so common with delicate females. Among these are especially to be reprehended the close confinement to which they subject themselves, the consequent want of muscular exercise in the open air, and their dietetic errors. I have, in several places, remarked on the injurious effects of drinking large quantities of warm fluids; no class of the community are more prone than young females to this practice, which gives rise to numerous nervous complaints, and is also productive of great injury to the teeth.

The statement above made, that in youth the frame is not completely developed, applies not merely to the muscles, but to every organ of the body, and to the brain, the organ of the mind: hence the cautions laid down for the regulation of muscular exercise are not to be neglected in that training of the mind which constitutes education.

The period of youth is that which is generally devoted to, and which is indeed best adapted for, scholastic education: what I have here to do, is, not to interfere with this arrangement, nor with established modes of tuition—my province is to point out the effects of education, and of the circumstances under which it is generally carried on, upon the health.

My first remark is, that the mental faculties ought not to be severely tasked. The time spent in most schools is far too long: taking into account the hours employed in preparing lessons after or before the attendance at school, but little time is left for any thing else than sleep. This should not be: much nervous influence is still needed to superintend and control the vital processes constantly going on in the daily enlarging frame. Muscular exercise and fresh air are essential to the formation of pure blood; without which the development of the body cannot proceed for an hour. But at school, for the most part, the acquisition of tasks and lessons demands unceasing labour of the brain; and thus the nervous energy, instead of being equally distributed to every organ and tissue, is concentrated in the brain. The time that should be passed amid the fields in pleasant pastimes, or in the prosecution

of botanical or geological researches, is spent in confined rooms, among books, which, by incessant perusal and repetition, fill the minds of their unhappy readers with disgust for literature of every kind, instead of being, as they might and ought to be, their guides to intellectual and moral excellence.

For the sake both of the body and the mind, this evil system should be changed for one more consonant with the laws of nature. The training of the body to perfection is not incompatible, but, on the contrary, strictly coincident with the highest mental cultivation. Let it not for a moment be supposed that I undervalue the importance of education, or desire to deter any one from bestowing upon himself, or upon his children, the best education he can obtain. But what proof have we that the system which is so destructive to the body, is beneficial to the mind? On the contrary, might we not infer, without any knowledge of the actual results, and merely from the intimate connexion of the mind with the body, that such a system would be scarcely less injurious to the former than to the latter? And does not observation prove that this *à priori* inference is completely borne out by facts—that in this case at least the physical and moral laws, though perfectly distinct and independent, are yet closely connected, so that it is not possible to infringe one set of laws, without, in some respects, departing from the other?\*

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\* In Germany much more attention is paid to physical education than with us ; gymnastics, horse-riding, and swimming, form-



But if mental exercise is conducted in subservience to the laws of nature, it contributes largely to health and longevity: the way in which it does so will be evident to those who read this book. The *proof* that it does so is contained in the long lists of persons who, distinguished by intellectual activity, have attained old age: "Of 152 savans, taken at hazard, one half from the Academy of Belles-Lettres, and the other from that of Sciences, in Paris, it was found that the sum of years lived among them was 10,511, or above sixty-nine years to each man."\*

I shall conclude my observations on this subject by a few miscellaneous remarks.

The practice of sending young persons to the Continent to be educated is one which has frequently entailed upon them the loss of health and happiness; for such evils, the acquisition of foreign accomplishments appears to be but a poor recompense: especially as the numerous excellent educational establishments of our own country, by employing able foreigners as teachers, afford all the facilities which can be enjoyed for that purpose abroad.

Pupils at boarding-schools are often compelled to attend

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ing part of the regular system of education. At the same time, the state of intellectual education is confessedly far better than it is in this country.—Vide Dr. Caldwell's work on physical education, for some observations on subjects connected with boarding-schools, to which too little attention has been paid, but which are of considerable importance.

\* Brigham on Mental Excitement, p. 64.

church or chapel three times on the Sunday; and, instead of obtaining a little relaxation on that day of rest, are, if possible, more closely confined then than at any other time. Two attendances are quite sufficient; a stroll into the country in the remaining part of the day would do young people more good, both bodily and morally, than a listless listening to words, which, by a constant repetition, lose all influence upon their minds.

The habit of early rising is one which conduces much to health, and ought to be encouraged, by all proper means, among the denizens of schools, and the young generally. It tends to produce that cheerful, buoyant state of mind which exerts so beneficial an influence over the bodily condition, that whatever is calculated to promote it deserves to be practised and enforced. It is valuable, also, inasmuch as it necessarily prevents the contrary habit of sitting up late; one which is too frequently contracted at this period of life by the ardent-minded student. There can be no doubt that prevalent modes of expression do much to lead young persons into this injurious practice. In the words of a popular writer, "The student is accustomed to associate in his mind the idea of great advancement in knowledge, and extraordinary eminence in his profession, with that of midnight study. The very terms which are often employed to designate those works which he regards as the labours of men of the highest attainments and greatest abilities, serve to confirm this impression."\*

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\* Letters on Early Rising, by A. C. Buckland.

It can hardly be necessary to point out the absurdity of such notions, which are directly opposed to the truth. But apart from this, the consequences of the practice in question upon the health are so destructive, that no one who saw them in all their extent, and was convinced of their certainty, could possibly persist in it. The powers both of mind and body are enfeebled to a fearful degree by it ; and thus the aspirant after literary or professional distinction frequently deprives himself of all chance of obtaining it, and sinks into premature imbecility and an early grave, by pursuing the very course which he had vainly hoped would secure to him the object of his ambition. "Nocturnal studies," says an elegant author, "too long and too closely continued, seldom fail to injure the eyes, and together with them the whole nervous system. They who are impelled by necessity to work by night and by day, must indeed submit with patience to their destiny ; but that he who is master of his time should chain himself down to a more exhausting toil than the labour of the galley-slave, is a species of folly approaching to insanity. And, indeed, I know of nothing more likely to produce madness than intemperate study, with want of exercise, want of air, and want of sleep. It will, after all, be but a poor comfort, to have gone through a whole library, with the loss of our eyes and our senses in the laborious progress." \*

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\* Essays, by Dr. Vicesimus Knox.

## CHAPTER III.

## MATURITY.

Excipit autumnus, posito fervore juventæ,  
Maturus, mitisque, inter juvenemque senemque  
Temperie medius, sparsis per tempora canis.—OVID.

WE come now to treat of the period of manhood.

Before I proceed to consider the subjects of diet, exercise, and mental excitement, in their particular relations to this period of life, it may be useful to give a general view of the more important causes of disease to which men in such a state of society as that which exists among us are liable.

No other animal deviates so far in its habits from the simplicity of nature as man; none is exposed to the action of so many circumstances injurious to its well-being. Hence his morbid affections are numerous and diversified, as is abundantly shewn by our nosological catalogues—long lists of diseases, which afford strong evidence that man has deviated widely from the path of life marked out for him by nature.

The congregating of large numbers of men into crowded cities—living in an atmosphere loaded with impurities—ill-assorted and untimely marriages—sedentary and unwholesome occupations—intemperance—the use of adulterated food, and of high-seasoned and indigestible viands,

taken, moreover, hastily, in the short intervals allowed by the hurry and turmoil of business—constant and excessive mental excitement, kept up by luxurious habits—great intellectual exertion, combined with bodily inactivity—the violence of the passions, such as envy, ambition, love, covetousness, which are constantly stimulated by intercourse with society—the delicacy and sensibility to external influences caused by heated rooms, too warm clothing, and other indulgences ;—all these are departures from man's natural condition, and produce those morbid states of the system which a more simple and uniform mode of living would prevent.

I will now proceed to consider more particularly the topics above mentioned.

To give any precise rules on the subject of the diet of persons of mature age, is a matter of great difficulty, if it be not even impossible. Every variety of constitution, of age, of sex, of health, requires a distinct course of diet ; in particular cases, therefore, it must be left to the individual's own judgment, to determine what diet agrees with him best. But there are, notwithstanding, certain general principles, the exposition of which may be useful in enabling persons, with proper care, to regulate their diet in all ordinary cases. Some of these which have been already stated, it will be sufficient briefly to enumerate.

Avoid excess of food. (Vide p. 61.)

Abstain from violent exertion immediately before or after meals.



Neglect of the former of these rules is, by the unanimous voice of writers on physiology, declared to be the main source of all the forms of dyspepsia and its consequences. The *kind* of food is generally thought to be of much less importance than the *quantity*. Dr. Abercrombie, in his Treatise on the Diseases of the Stomach, says, “In the regulation of diet, much, certainly, is to be done in dyspeptic cases by attention to the quality of the articles that are taken: but I am satisfied that *much more depends upon the quantity*; and I am even disposed to say, that the dyspeptic might be almost independent of any attention to the quality of his diet, if he rigidly observed the necessary restrictions in regard to quantity.”

It is to be borne in mind that the excess here cautioned against has no reference to, nor can be measured by, any *absolute* quantity. That which would be an excessive amount of food, if taken by one person, might be no more, or even less than sufficient for another person, or for the same person under different circumstances. The proper quantity of food is that which the body actually needs, and is therefore so far from being fixed, that it varies with every individual, and with the same individual in every variety of circumstance. It is well that men are not left in this matter to the guidance of their reason:—the appetite, when not perverted by bad treatment, is, as I have already shewn, a guide on which we may implicitly rely, representing and forcing upon our attention the real condition of the body.

Although the *quantity* of food is the most important

matter connected with it, yet it is, at the same time, undoubtedly true that substances differ widely in their digestibility and nutritive qualities; on account of which differences some kinds of food are to be preferred to others, and some to be wholly abstained from, by those whose digestive organs are in any way impaired. For particular information as to the relative good qualities of the articles most commonly used for food in this country, I must refer my readers to works on the subject of dietetics, one of the best of which is Dr. Combe's, to which I am indebted for the following general statement relative to this point.

“Vegetables, generally speaking, are slower of digestion than animal and farinaceous aliments, and consequently, when digestion is feeble, are liable to remain in the stomach till acetous fermentation takes place, and gives rise to acidity and flatulence; fat and oily meats are nearly in the same predicament; and hence both form unsuitable articles of diet for dyspeptics. Soups and liquid food are also objectionable, both because they are ill adapted for being properly acted upon by the gastric juice and by the muscular fibres of the stomach, and because they afford insufficient nourishment. From the former cause they frequently impair the digestive functions, and from the latter they induce diseases of debility, which it is difficult to subdue. Daily experience furnishes examples of stomachic disorder from constantly eating soups, especially as a preliminary to an otherwise substantial dinner: and the fatal epidemic which prevailed a few years ago in the Mil-

bank Penitentiary was distinctly ascertained to have been partly caused by an insufficient and too liquid diet.

“When, from the state of the health, or other causes, chicken-tea, beef-tea, veal-broth, or other kinds of soups, require to be given, their digestibility will generally be promoted by the addition of bread, barley, or rice, to give them consistency, and by taking little or no other food along with them. Even vegetables, when taken alone, are sometimes digested without difficulty, where if mixed with other substances, they disorder the stomach.

“Pastry, rich cakes, puddings, and other articles containing much fatty or oily matter in their composition, are perhaps the most generally indigestible of all kinds of food, and consequently ought never to be eaten when the tone of the stomach is impaired.

“Plain well-cooked animal food, not too recently killed, and eaten in moderate quantity, with bread, rice, or potatoes, forms one of the most easily digested meals which can be devised for a weak stomach. Venison, and most kinds of game, when not too high, are very suitable in the same circumstances.

“In some states of the system, where the condition is irritable, and the mode of life not sufficiently active, red, highly animalised meat proves too stimulating, although easy of digestion. The same thing happens during recovery from illness: and hence fish, chicken, and other white meats, which excite less and are digested more slowly, are often allowable where beef, mutton, pork, &c. cannot be taken with impunity.”

As a general rule, the plainer the food the better: condiments serve only to stimulate and prolong the appetite, after the wants of the body have been supplied.

There is a class of persons who, for want of something better to employ their time and attention, devote themselves to gastronomie pursuits, making eating the chief business of their lives, and stimulating their appetite—languid for want of active exertion—by every variety of culinary devices. The late Mr. Walker may be taken as a specimen of this set of persons; and the following extraets from his work, entitled “The Original,” will shew how far these epicures deviate from the mode of living which I have set down as being most conducive to health and true enjoyment.

“I will give an account of a dinner I have ordered this very day at Lovegrove’s at Blackwall,—where, if you never dined, so much the worse for you. This account will serve as an illustration of my doctrines on dinner-giving better than a long abstract discourse. The party will consist of seven men beside myself, and every guest is asked for some reason—upon which good fellowship mainly depends, for people brought together unconnectedly had, in my opinion, better be kept separate. Eight I hold to be the golden number, never to be exceeded without weakening the efficacy of concentration. The dinner is to consist of turtle, followed by no other fish but white-bait; which is to be followed by no other meat but grouse, which are to be succeeded by apple-fritters and jelly, pastry on such occasions being quite out of place.

With the turtle, of course, there will be punch; with the white-bait, champagne; with the grouse, claret: the two former I have ordered to be particularly well iced, and they will all be placed in succession upon the table, so that we can help ourselves as we please. I shall permit no other wines, unless perchance a bottle or two of port, if particularly wanted, as I hold variety of wines a great mistake. With respect to the adjuncts, I shall take care there is cayenne, with lemons cut in halves, not in quarters, within reach of every one, for the turtle; and that brown bread-and-butter in abundance is set upon the table for the white-bait. It is no trouble to think of these little matters beforehand, but they make a vast difference in a convivial entertainment. The dinner will be followed by ices and a good dessert, after which coffee and one glass of liqueur each, and no more; so that the present may be enjoyed rationally without inducing retrospective regrets. If the master of a feast wishes his party to succeed, he must know how to command, and not let his guest run riot according each to his own wild fancy. Such, reader, is my idea of a dinner, of which I hope you approve.”\*

Mr. Walker's recipe for a Christmas-dinner is not likely to be extensively adopted by his countrymen, who are somewhat too fond of substantial fare to put up with a dinner which might do well enough for a sated gourmand,

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\* As to which, I can only say, that the reader who has any knowledge of the laws of health will certainly do no such thing.



but would be ridiculous if placed before a true Englishman, with the best of sauces—hunger, to give a zest to the meal.

“This reminds me of a dinner I ordered last *Christmas-day* for two persons besides myself, and which we enjoyed very much. It consisted of crimped cod, woodcocks, and plum-pudding, just as much of each as we wanted, and accompanied by champagne. Now this dinner was both very agreeable and very wholesome from its moderation; but the ordinary course would have been to have preceded the woodcocks by some substantial dish, thereby taking away from their relish, at the same time overloading the appetite. Delicacies are scarcely ever brought till they are quite superfluous, which is unsatisfactory if they are not eaten, and pernicious if they are.”

It is not in the highest circles, however, that high living is most exclusively adopted. The Quarterly Reviewer of “The Original” states that “many a boiled round of beef has been sent from a well-known shop in St. Martin’s Court to George the Fourth at Carlton House, many to the Duke of Sussex at Kensington.” The same authority informs us that “the late Duke of Devonshire’s passion was a broiled bladebone of mutton, which was every night got ready for him at Brookes’s; and the late Duke of Norfolk was accustomed to declare that a man of taste would find as much variety in a dinner at the Beef-steak Club as at the most plentifully served table in town. Both their Graces were men of true *gusto*.” The writer subsequently

mentions that “the Duke of Wellington may be often seen at the Senior United Service Club dining on a joint ; and on one occasion, when he was charged fifteen pence instead of a shilling for it, he bestirred himself till the odd threepence was struck off.”

Few errors are more prevalent in this country than the notion, that without an abundant supply of animal food it is impossible to be strong or healthy ; and hence in general far *too much* is consumed. In our northern climate, some animal food is undoubtedly necessary ; but that its importance is too highly rated will be evident, when we consider that Irish peasants live almost exclusively upon potatoes — the East Indian upon rice — that the Italian’s dinner consists of a piece of bread, some wine, and a few figs—and that the French subsist principally upon poultry, eggs, and farinaceous food ; and that, notwithstanding, none of these (with the exception, perhaps, of the East Indian) can be characterised as weak or puny races, but are rather the reverse. A substantial meal of animal food once a-day is, in most cases, enough.

What is the proper number of meals a day ? what are the best times for them ? are questions that have often been discussed.

From what has been already said, it is evident that the time of eating, as well as the quantity of food, ought to be regulated by the appetite indicating the wants of the system. But nature has given to man considerable power of training even those organs whose functions are organic ; and there is in his constitution a tendency to periodicity,

which makes it both easy and advantageous to adopt fixed times for supplying his wants.

The arrangements that have been made amongst the various classes of society, in regard to this matter, are sanctioned by habit and custom, and (with some exceptions) are perhaps as good as any others that could be adopted.

As a general rule, an interval of from five to six hours should elapse between the meals: but this must, of course, vary according to circumstances, and depend upon the appetite. Persons engaged in business frequently do themselves much mischief by disregarding its monitions amidst the bustle and excitement of trade; after a time, it is true, the appetite subsides, but the necessity for food is not thereby removed. It is no unusual thing for a merchant to breakfast at eight o'clock in the morning, ride several miles to town, and return to dine in the evening between six and seven o'clock, without having, during all that time, eaten any thing. This long fasting is injurious; and the subsequent full meal still more so. In such cases a luncheon ought certainly to be taken.\*

In this country commercial men too frequently hurry their meals; neither giving themselves time for the due mastication of their food, nor abstaining from active exertion for a sufficient space after the meal to enable the pro-

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\* A biscuit eaten about the middle of the day will preserve the tone of the stomach, which is debilitated by long fasting. Inaction injures it, as well as every other organ.

cess of digestion to go on uninterruptedly. Indigestion is the certain result of such habits. A rest of at least one hour ought to be taken after dinner; at all events, from intense thought or violent exercise.

There are two other rules as to diet which must be noticed. Never eat things out of season, nor much of dishes to which you are not accustomed.

We now come to the subject of liquid food.

Secretion and exhalation are constantly carrying off the fluids of the body, which process, when continued up to a certain point, gives rise to the sensation of thirst; a sensation perfectly analogous to that of hunger; it warns us that a supply of fluid is needed, and, at the same time, strongly impels us to procure it. Most of the foregoing rules and observations in reference to hunger are therefore applicable to thirst also.

A few remarks on the use of liquids at meals, and on the various kinds consumed in this country, will comprise all that is necessary to be said on this subject.

Liquids form a large proportion of the first meal among most civilised nations; a practice for which there is a good physiological reason: viz. the great expenditure of fluids during the night, occasioning the sensation of thirst commonly experienced in the morning.

It is by no means requisite that a large quantity of liquid should be taken at dinner; on the contrary, it is likely to delay the digestion of the meal; and, if habitually indulged in, permanently to weaken the stomach. The best time for taking drink is about three or four

hours after a solid meal; the usual time for drinking tea in this country is in accordance with this rule.

Water, the fluid most abundantly provided, is that best fitted for man to drink: it is suitable for every variety of constitution, and is more effectual than perhaps any other liquid in allaying thirst; a fact which shews that it is the beverage designed to supply the loss of fluid to which we are perpetually subject.

There are many simple compounds in which water is the chief ingredient, such as ginger-beer, lemonade, toast and water, soda-water, tea, coffee, chocolate, cocoa, &c. All these are, for common consumption, far preferable to fermented liquors; and it is gratifying to observe the extent to which they have superseded those intoxicating drinks. The introduction of tea and coffee, in particular, into general use, has done much towards effecting this change; and that, notwithstanding the objections which have from time to time been brought against them, these exotics are growing in public favour, we have conclusive evidence in the constant and rapid increase of the importations of them into this country. It is well known that tea is one of the most refreshing of beverages. After a long journey, a cup of it produces all the exhilarating effects of wine, without any of its bad consequences; coffee not only refreshes, but acts beneficially upon the digestive organs; and when taken early in the morning, before rising, sometimes alleviates an attack of asthma or coughing, and thus proves of great service to persons advanced in life. Still it must not be forgotten that they are stimu-



lants ; and if taken too strong, or in great quantities, give rise to nervous complaints ; and that the latter especially, although for a time an aid to digestion, does yet, like all other stimulants, if too freely indulged in, weaken the sensibility of the stomach, and derange its functions. It must be borne in mind also, that diluents of any kind in large quantities relax the coats of that organ, and impair its efficiency.\*

As to fermented liquors, it is the almost unanimous opinion of physiologists, that to a person in a state of health they are decidedly injurious ; their effect is directly upon the nervous system and the circulation, which they stimulate and quicken. Now, in a state of health the nervous system is duly balanced, neither too active nor depressed ; and the circulation is of the kind best adapted for carrying on the processes of waste and nutrition. Whatever, then, tends, in however slight a degree, to disturb this condition of the system, is, *pro tanto*, a *cause of disease*: not the less a cause of disease because its effects may for a time be imperceptible, or because it may temporarily enliven the mind, and fill it with pleasing emotions. But fermented liquors (well are they denominated

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\* This observation is especially applicable to *warm* diluents. It is a practice with many to drink warm spirits and water at night before going to bed : few things are more hurtful to the stomach ; it is peculiarly injurious in this way to young persons, besides frequently laying the foundation of intemperate habits in after-life.

intoxicating, or *poisoning* ; τοξικόν, *poison*) not only derange *function*, but if habitually taken, inflict terrible *organic* injuries. The following extract from the work of Dr. Beaumont, to which I have already referred, is so instructive, that I make no apology for its length. The individual who was the subject of his observations and experiments, a healthy, and, in general, a sober man, had been drinking copiously of ardent spirits for several days : when, at this time, Dr. Beaumont examined his stomach, “its mucous membrane was covered with inflammatory and ulcerous patches, the secretions were vitiated, and the gastric juice diminished in quantity, and of an unnatural viscosity ; and yet St. Martin described himself as perfectly well, and complained of nothing. Two days subsequent to this, the inner membrane of the stomach was unusually morbid, the inflammatory appearance more extensive, the spots more livid than usual ; from the surface of some of them exuded small drops of grumous blood ; the ulcerous patches were larger and more numerous ; the mucous covering thicker than common, and the gastric secretions much more vitiated. The gastric fluids extracted were mixed with a large proportion of thick, ropy mucus, and a considerable muco-purulent discharge, slightly tinged with blood, resembling the discharge from the bowels in some cases of dysentery. Notwithstanding this diseased appearance of the stomach, no very essential aberration of its functions was manifested. St. Martin complained of no symptoms indicating any general derangement of the system, except an uneasy sensation and a tenderness at the

pit of the stomach, and some vertigo, with dimness and yellowness of vision on stooping down and rising up again; pulse uniform and regular, appetite good: rests quietly, and sleeps as usual."

This account presents us with a description of the noxious effects of ardent spirits, which could hardly have been imagined; and which, but for the fortunate chance which enabled a philosophic eye to explore the hidden recesses of the stomach, we might perhaps never have possessed. One circumstance deserves particular comment: it shews that the defence commonly set up by those who are addicted to fermented liquors, that they are none the worse for what they drink, is worthless: inasmuch as St. Martin "complained of nothing," "had a good appetite," "and slept as usual," at the very time that his stomach was in a state of active inflammation!

But his strength of constitution carried him through a trial in which a less robust frame would receive far greater injury. It appears, from this account, that the quantity of the gastric juice was diminished: one of the consequences of which would, in most cases, be loss of appetite; and this is actually one of the evils most commonly experienced by the intemperate, although St. Martin appears, in this instance, to have escaped it.

To this statement it is only necessary to add, that the gastric disorder brought on by intemperance sometimes induces serious affection of the brain; but more frequently abdominal congestion, with diseases of the liver and sto-

mach, are first established ; and apoplexy or dropsy terminates life.

It may be said, Your statements are decisive as to the evils of indulging to *excess* in ardent spirits ; but the abuse is no argument against the use. And many persons will be ready, on their personal experience, to testify the good qualities of various favourite liqueurs and compounds. To all of which I answer, that no one talks of *moderation* in the use of poison, nor concludes that because it is possible to swallow it in a diluted shape, and yet continue alive, it is therefore beneficial. The question is, whether spirits do not impart a morbid excitement to the system ? This question must be answered in the affirmative ; and what is this but to admit them to be hurtful ?

But substances, poisonous in themselves, may often be exceedingly useful as medicines, in preserving health and life ; such is the case with fermented liquors. There are some conditions of the body, in which the circulation is sluggish, and the nervous system weak and depressed : here, then, is the occasion when such liquors may be usefully and appropriately prescribed. There are, no doubt, many such cases ; it would be absurd, therefore, to denounce their use absolutely and universally. But as no one takes medicine without the advice and direction of his medical attendant, so let it be with fermented liquors.

The nature of this work precludes me from entering upon the *moral* evils resulting from the use of ardent or intoxicating beverages. But supposing it produced no

other than physical ills, the magnitude of these would render any attempt to extirpate their cause worthy of our sincerest admiration and support. Such an attempt is the institution of Temperance Societies; an attempt which has already been extensively successful in the land where it was commenced, and which has not altogether failed in our own country.\* The good effected by Temperance

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\* In the lately published work on America, of Mr. J. F. Grund, remarkable for its statistical precision and accuracy, it is stated that in 1833 the American Temperance Society contained 2,000,000 members; and that in 1831, when the number was far less, 1,500 distilleries had been stopped; 4,000 merchants had ceased to traffic in spirits; 4,500 drunkards had been reformed; and 1000 vessels sailed without ardent spirits as a part of their provision, the men on board which were proved to be better able to undergo the fatigues and hardships of the sea than those in vessels where the old plan was persevered in. Some time since, Mr. Delaval, an American gentleman, read to the Ashmolcan Society at Oxford, a sketch of the rise and progress of Temperance Societies in the United States. Among other facts stated by him, it appears that Insurance Companies insure vessels which do not carry spirits 5 per cent lower than others; and that in several states laws have been framed to prohibit the sale of intoxicating liquors in less quantities than fifteen gallons, with the exception of what is wanted medicinally.

In this country, Temperance Societies have already made some progress, but not so extensively as is to be desired. There can be little doubt, however, that they will increase in number and usefulness, as the attention of the public is more forcibly directed



Societies must not be reckoned merely by the number of their pledged members; this, it is probable, indicates but a small part of their beneficial results: by powerfully calling the attention of the civilised world to the tremendous evils of intemperance, they have, doubtless, led many thousands of persons who have not enrolled themselves under their banners, to see the real state of the case, and to abandon habits so fatally destructive of physical, moral, and intellectual excellence.

There can, however, be little doubt that the most powerful and certain means of exterminating such habits are the diffusion of knowledge, the enlightenment of mankind, and the consequent production of a taste for pleasures of an intellectual kind among the people at large. The consumption of spirits in this country is ascertained by official returns to be far less in proportion to the population than it was one hundred years ago; this diminution can be accounted for no otherwise than by the operation of the causes just enumerated, and by the introduction of tea, coffee, and other wholesome beverages.

I quote the following striking proof of the increased temperance of the inhabitants of the metropolis from a

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towards them, and as the conviction of the destructive effects of spirituous liquors upon the health becomes more general.

Mr. Livesey, of Preston, has informed me that upwards of 30,000 persons in Lancashire, principally mechanics and artisans, have joined the Temperance Society; and that the good effects of temperance have already manifested themselves in the increased and increasing comforts of themselves and families.

public journal. "From the circumstance of Saturday being Christmas-day (1841), the reports brought by the police under the notice of the City magistrates embraced two days and two nights ; notwithstanding which no more than five charges of drunkenness and disorder appeared in the charge-sheets for their adjudication."

As another symptom which, in its turn, becomes a cause of this increased sobriety, we may mention the establishment in London and other great towns, within the last few years, of great numbers of coffee-houses ; the effect, and at the same time a cause of the improvement that has taken place in this matter among the lower classes of society. The practice of dram-drinking, still unfortunately too prevalent among the industrious classes, might be much diminished if those who are immediately above them in society, their employers, were to make it their business, as it certainly is their duty, by precept and example, to discourage it ; instead of, as they frequently do, sanctioning it, by giving spirits to their work-people as incentives to extra exertion. And as "evil communications corrupt good manners," no person should keep in his service any one who is habitually or frequently intoxicated. Were this made a rule in all workshops, manufactories, &c., its beneficial results would soon be apparent.

The *temperature* of drink is of great importance ; if too low, it occasions an abstraction of heat from the stomach and neighbouring vital organs, so great as sometimes to produce death—and less degrees of cold are frequently hurtful ; if too high, it injures the teeth and relaxes the

coats of the stomach, and thus affects its efficiency. Above all, sudden variations in the temperature of what we drink ought to be avoided. The degree of heat which seems in the greatest number of cases to be best, is about that of the healthy body, ranging from 90 to 100 of Fahrenheit.

On the subject of exercise I have already so fully entered, that I have here but little to add.

Manhood is the period which the condition of the body points out as that peculiarly adapted for labour ; in which labour of a proper kind, and in moderation, so far from being an evil, and the necessity for it a curse, as it is commonly but ignorantly represented to be, is, in reality, indispensable (our constitution being such as it is) to the preservation of health. Well has the poet admonished those who take this false view of the subject, in the following lines :—

“ O mortal man ! who livest here by toil,  
Do not complain of this thy hard estate :  
That, like an emmet, thou must ever moil,  
Is a sad sentence of an ancient date ;  
And certes there is for it reason great :  
For though sometimes it makes thee weep and wail,  
And curse thy star, and early drudge and late,  
Withouten that would come a heavier bale,  
Loose life, unruly passions, and diseases pale.”\*

*Castle of Indolence, c. i. st. 1.*

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\* History informs us that an ancient king of Persia commanded all his subjects to engage in some kind of labour or exer-

Exercise is not only conducive to the *preservation* of health, but is in many cases the most efficacious means of benefiting those whose health has become impaired by neglect of the natural laws. The following fable by Voltaire expresses this truth in so lively and forcible a manner that I cannot deny myself the pleasure of transferring it to my pages:—

“Ogul, a voluptuary who could be managed but with difficulty by his physician, on finding himself extremely ill from indolence and intemperance, requested advice. ‘Eat a basilisk, stewed in rose-water,’ replied the physician. In vain did the slaves search for a basilisk, until they met with Zadig, who, approaching Ogul, exclaimed, ‘Behold that which thou desirest; but, my lord,’ continued he, ‘it is not to be eaten; all its virtues must enter through thy pores; I have therefore enclosed it in a little ball, blown up, and covered with a fine skin: thou must strike this ball with all thy might, and I must strike it back again, for a considerable time, and by observing this regimen, and taking no other drink than rose-water for a few days, thou wilt see and acknowledge the effect of my art.’ The first day Ogul was out of breath, and thought he should have died from fatigue; the second he was less fatigued, and slept better; in eight days he recovered all his strength. Zadig then said to him, ‘There is no such thing in nature

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cise before they ate their meals; alleging as a reason for so doing, that he wished to reign over a healthy and robust, not over a sickly people.

as a basilisk ! *but thou hast taken exercise and been temperate, and hast therefore recovered thy health !* ” ”

Persons whose circumstances enable them to dispense with labour, and who, having no activity of mind, pass their days in listless idleness, are, of all men, least to be envied. Not only are they too frequently led into vices injurious to health, but the nervous system becomes the victim of sloth,—ennui, hypochondriasis, indigestion, afflict these unhappy mortals, who not seldom put an end to their miserable existence by suicide. Let the man who depends for subsistence upon the toil of his muscles or of his brain, console himself by pondering on these facts : and let those who are independent of labour recollect that man is a social being, and that the Creator has ordained that useful exertion should be essential to individual happiness.

The exercise afforded by our occupations, when they are of a healthy description, and not too long pursued, is of the very best kind ; inasmuch as it is one in which the mind as well as the body is engaged ; harmony of mind and body having already been shewn to be requisite for the full realisation of the benefits of exercise.

It is deeply to be lamented that, notwithstanding the vast improvements that have of late years been effected in this respect, so many of the occupations of life are still destructive of human health and happiness.\* It is to be

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\* From the statements of Mr. Marshall, the superintendent of the Home Manufacturing District, it appears that the employ-



feared that many of the causes of these evils must long remain in operation, and that some of them are irremovable. But there can be no doubt that most occupations are injurious, more by reason of the excessive length of the time of labour, than of any inherent unhealthy tendency; and that if men generally were acquainted with the laws of the animal economy, and applied their knowledge to the counteraction of the morbid influences to which they are daily exposed, they would escape many of the miseries which they now too frequently endure. Such would be the results if, for example, persons engaged in business devoted the time during which they are released from labour to the invigorating of their frame, instead of spending it in practices which aggravate the complaints occasioned by their employments, and convert functional into organic disease.\*

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ment in mills and factories, of wool, flax, cotton, and silk, are still highly injurious to health. In the whole of this extensive district, which includes London, Halifax, Huddersfield, Leeds, &c., Mr. Marshall does not recollect three persons of the age of sixty employed in these mills. At thirty and five and twenty, a man and woman are considered to be old; nay, they are actually aged, so far as that is denoted by decrepitude, disease, and want of physical power.

\* The proposal for shortening the hours of business, now so generally supported in London and other towns, is one, the adoption of which would prove highly beneficial to the health of a very large class of the community, and would not, I think, be any detriment to trade. The class in question has of late years improved so much

How many *young* men are there in this city, who, being engaged in sedentary occupations the greater part of the day, in banking-houses, merchants' counting-houses, or lawyers' offices, imperatively need much muscular exercise to preserve their bodies in health and strength, yet, in sheer ignorance, give up almost the only opportunity they have of taking such exercise ; and instead of walking to and from their places of business, get into an omnibus, and ride, for the express purpose of avoiding a little fatigue : whereas their elder brethren, who have risen an hour before them, may be seen walking, thereby availing themselves of the advantage of exercise. Many of these same persons, breathing during the whole day confined and impure air, emerge therefrom, and, with admirable sagacity, proceed straightway into the still more impure air of a theatre, or other crowded place !

If individuals of this class knew their own interests, they would fix their habitations at a short distance (two or three miles) from town ; and would regard as an indispensable appendage to their dwellings a plot of garden-ground. These preliminaries arranged, they would be early risers ; they would cultivate their gardens, and, whenever the state of the weather permitted, would call in to their aid no other instruments of locomotion than those with which nature has furnished them. If such a

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in its habits, that there is little reason to fear that any additional time placed at its disposal would be mis-employed. The plan is certainly deserving of a trial.

plan as this were pursued, they would be able to resist the unhealthy influences to which they are in their daily pursuits exposed; and a blooming cheek and cheerful eye would be more common phenomena in the city of London than they are at present.

But, though the persons composing this useful and respectable class are in general neglectful of exercise, there are every year not a few victims from among them to excessive muscular exertion. Most of them enjoy once a year a vacation of a few weeks—a resting from the cares and toils of business: and, as if to make up for their long confinement, many of these young men determine to make the most of their short period of liberty, and set out on extensive pedestrian excursions. Ignorant or unmindful of the fact, that the muscles, for want of due exercise, become weak and incapable of powerful action, and that, to be beneficial, it is necessary that exercise should be proportioned to the strength of the organ,—their object is, to accomplish the utmost of which their limbs are capable. Having heard that exercise is conducive to health, and knowing that, for the previous twelve months, they have had exceedingly little of it, they imagine their best plan is, to take advantage of the present opportunity, and to lay up a stock of health for the twelve months to come. Unmindful of the monitions which their weary limbs afford, they march on to the end of their predetermined journey, consoling themselves for the pain they suffer by thinking that as it is caused by *exercise*, it will eventually promote their health. No opinion can be more mistaken:

this excessive fatigue weakens the body to such a degree, as often to produce permanent debility, and lay the foundations of fatal disease; nay, it is sometimes the direct cause of death—as it was in a case cited by Dr. Combe.

Now all this mischief may be prevented by attention to a very simple rule, which has already been enunciated in this book, but which I will here repeat—viz. never continue exercise after it has become *painful*. Our muscles, like the rest of our bodies, are made susceptible of pain, for the beneficent purpose that we may know when they are in danger, and may thus be warned to do every thing in our power to remove them from it. It is a mistaken notion that exercise of all kinds, and under all circumstances, is beneficial. Unless it is adapted to the condition of the muscles, it will prove the agent of death, not the giver of health.

As I have before remarked, exercise is most beneficial when in unison with the mental state; if amusement or business can be combined with it, the same amount of exercise will be far more useful than if it were taken for the sake of the exercise alone. The effect of mental occupation in enabling persons to perform feats of strength, or to go through great muscular exertion, is matter of common observation; and was remarkably exemplified by Captain Barclay when training T. Cribb.

As closely connected with the subject of exercise, I shall append a few observations relating to those who lead sedentary lives.

Persons who are much occupied in writing, such as

barristers, editors of newspapers, and those engaged in literary pursuits, will do well to have a high desk, at which they should stand to write whenever they are fatigued with sitting. This practice will be found extremely efficacious in preventing those desk-diseases which are incident to such occupations.

The constant use of soft stuffed seats by sedentary persons is one which frequently occasions distressing hæmorrhoidal affections. An excellent sort of seat is one common in France, having a circular hole in the middle; but the best seat is a common open chair.

The modes of warming by steam, hot water, and gas-stoves, now becoming prevalent, are decidedly objectionable, especially for rooms and buildings, such as banking-houses, &c. in which the sedentary are employed. They do not in any way assist ventilation; so that the air of buildings in which they are used is likely to be less pure and wholesome than where fires in open stoves are the means of diffusing heat. These objections are of course applicable with much greater force to stoves in which substances producing deleterious gases, such as carbonic acid, are used. However small a proportion the unwholesome gas may bear to the atmospheric air, it cannot fail to affect persons with weak lungs; even those in perfect health must suffer, though to a less extent.

We now come to consider the important subject of the effect of mental labour and excitement upon the health.



By mental labour is of course meant the exercise of the intellectual faculties.

By mental excitement is meant the undue activity of the passions.

It must be recollected that the states of the mind affect the body through the brain, which alone (and not the mind itself) is liable to disease.

Mental labour or excitement may injure the health in two ways. 1st, By depriving the body of that cerebral influence which is essential to the carrying on of function, or by vitiating it. 2d, By inducing disease in the brain itself, which it probably does by concentrating upon that organ the nervous energy intended to be diffused over the whole body.

I shall first point out those kinds of excessive mental labour which are most prevalent in this country, and those habits which contribute most largely to the production of mental excitement; and then consider the two classes of disease just enumerated.

The present age may be termed the commercial era. The spirit of trade prevails over the whole community, to the exclusion of almost every other feeling, and brings into subordination to itself the few feelings that it admits to take possession for a time of the minds of our countrymen. The loftiest sentiments of the soul, destined to rule therein, and to control and guide all the inferior powers of our nature, are often made subject to the low, the debasing love of gain. This state of society may be one

through which it is necessary we should pass in our progress towards a higher civilisation; but it is one, notwithstanding, which, inflicting as it does so many evils, both moral and physical, upon those who are in it, it is the duty of every one, to the extent of his power, to endeavour to correct. It is for me to point out its physical evils.

Thousands—I might say millions—of our countrymen devote all their energies, bodily and mental, to the one concern of money-getting. Early and late they pursue their object; they engage in endless schemes for the increase of their wealth; their minds are perpetually on the rack; not a day passes without intense mental labour and excitement: health is neglected, and present comfort despised, that they may the more uninterruptedly pursue their plans of aggrandisement.\* The innumerable specu-

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\* “Of the causes of disease, anxiety of mind is one of the most frequent and important. When we walk the streets of large commercial towns, we can scarcely fail to remark the hurried gait and care-worn features of the well-dressed passengers. Some young men, indeed, we may see, with countenances possessing natural cheerfulness and colour; but these appearances rarely survive the age of manhood. Cuvier closes an eloquent description of animal existence and change with the conclusion that ‘life is a state of force.’ What he would urge in a physical view, we may more strongly urge in a moral. Civilisation has changed our character of mind as well as of body. We live in a state of unnatural excitement; unnatural because it is partial, irregular, and excessive. Our muscles waste for *want* of action;

lations that are daily starting up, and the avidity, the blind eagerness, with which they are entered into, are abundant evidence that this picture is not overdrawn. Who can enumerate the various associations for the carrying out of all imaginable projects, which occupy so large a portion of the attention of the legislature; each of which promises to its promoters the speedy realisation of that after which all men seem to be striving—wealth? This, then, is the first and most widely operating cause of mental labour and excitement.

But there is a class of men, many of whom err in the opposite extreme of total disregard of pecuniary considerations, who yet disobey the laws of the animal economy as entirely as do those just mentioned. They are men striving after fame, or actuated by the nobler motive of advancing the cause of human happiness: men who spend their days and nights in the acquisition of knowledge—who task their faculties to the utmost in their disinterested search after truth, and in communicating the results of their inquiries to the world. How many noble souls are there at this moment in our land, ever active, ever on the alert, ever labouring, and ever excited!—souls that scorn the acquisition of wealth, and are always devising plans by which they may gain credit for themselves, or

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our nervous system is worn out by *excess* of action. Vital energy is drawn from the operations for which nature designed it, and devoted to operations which nature never contemplated.”—

THACKRAH.

confer on their fellow-men some new benefit! In our venerable halls of learning, in the crowded city, and in the solitary country, such men abound: but though their aim is far superior to that of the great mass of mankind, the physical evils which result from their injudicious pursuit of it are not on that account less numerous or severe.

The causes of disease just referred to, are habits of mental labour, and of excitement produced by, or necessarily connected with, that labour. The following are chiefly habits of excitement: viz. indulgence in political discussions—in religious excitement and emotions—in gambling—and generally the immoderate indulgence of the passions.

It is not necessary for me to enter into any detailed statements respecting these causes of mental excitement. They all agree in this, that their effect upon the brain and nervous system is to excite and stimulate them to the utmost: it makes no difference whether the subject that engrosses the attention, and arouses the feelings and passions, be the jarring interests of party, or the joyful anticipations or dread forebodings of a future state—whether men are agitated by their lowest passions, or by their highest conceptions and aspirations—by hope or by fear,\*—the physical consequence is the same in kind, and differs

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\* It is a curious fact, that during the South Sea scheme more persons lost their senses by the sudden acquisition of great wealth than by the loss of it.

in degree only according to the vehemence of the passion which produces it.\*

As politics, however, are one of the leading causes of excitement at the present day in this country, I may be excused for referring somewhat more at large to them. It is strange that this subject should excite immoderately many men who display comparatively little anxiety about those private affairs which one would think (without attempting to undervalue the importance of politics) bear a far more direct relation to their well-being. How many hot-headed persons are there, who are in a state of constant excitement upon matters of the most trifling moment—who throw themselves into a fever in discussing a subject which concerns no one! The *media via* of politics, neither indifference nor partisanship, is the best, both for

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\* The passion of love deserves to be particularised, as being the most universally experienced, and as having the greatest tendency to excess, in which state it produces the worst of maladies. Disappointment in love is one of the principal causes of suicide; and this fact clearly proves the deranging effect of the passion upon the mental faculties. The progress of the disease of which excessive love is productive may be thus described: as the force of love prevails, sighs grow deeper, a tremor affects the heart and pulse, the countenance is alternately pale and red, the voice is suppressed in the fauces, the eyes grow dim, cold sweats break out, sleep absents itself at least until the morning, the secretions become disturbed, and a loss of appetite, a hectic fever, melancholy, or perhaps madness, if not death, constitute the sad catastrophe.



the health of individuals and for the general good. It is to be regretted that men, while striving, as they imagine, to promote the prosperity of their country, should so much injure their own happiness. "Politics," says the Rev. Mr. Fletcher, "are at best an evil, though apparently, in the present condition of society, a necessary one: well, therefore, would it be for us, if, in our promotion of the general good, we prudently kept within the limits of the necessity; but alas! we suffer our prejudices to run riot with our judgment, and convert that into a curse which might otherwise partake of the nature of a blessing."\* When we recollect that political dissensions have frequently been the causes of war, even of civil war—one of the most tremendous evils to which mankind is liable—equally destructive to mind and body, involving both in one common ruin,—surely the vehemence of party-feeling should be moderated; and since we all profess to be actuated by a desire for the general good, let us endeavour to promote it by good-will and kindness towards one another, recollecting that we frustrate our own objects, if we introduce disunion and dissension into our country, inasmuch as no nation can become great unless it is united. "Every kingdom divided against itself is brought to desolation; and every city or house divided against itself shall not stand."

In regard to warfare, the public mind in all civilised countries is becoming more and more alive to its evils, and

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\* Peace, not Party; recently published.

to the absence of any substantial advantages derivable from it ; and the day, fraught with innumerable blessings to mankind, is rapidly approaching when this truly barbarous and inefficient mode of settling disputes will be universally scouted and become a subject of unfeigned astonishment. The following passage from the Appendix to the American Prize-Essays on a Congress of Nations is full of weighty observations, and deserves attention and consideration :—

“ War pays no regard to the merits of a case. Its rule is might, not right. But arbitration does consider those merits. Again : the stronger party being more likely than the weaker to be the aggressor, a resort to war in the case renders it probable that the injured party will receive additional injury, instead of obtaining redress ; whereas by arbitration that party would, in all probability, obtain redress. In cases where two parties are nearly equal in strength, by resorting to war they generally leave off where they began—nothing being decided, and both parties being sadly injured. Arbitration in such cases, also, would answer a better purpose in both respects. And in cases where the stronger party is the injured one, although by a resort to war redress is generally obtained, how hard the way of obtaining it ! Arbitration would afford it in an easier way. In every case, then, the ends of justice are better subserved by arbitration than by war, and all the evils of war are prevented besides. Furthermore : war is an infringement of the independence of nations. Surely it is such an infringement for one nation to dictate to an-

other, and to attempt to enforce its dictation, as is always done by one of the parties in war. But arbitration respects national sovereignty. Here is no dictation, no coercion, nothing but friendly counsel. Once more: by resorting to war, nations violate one of the plainest dictates of reason, viz. that parties should not be judges in their own cases, which they always assume to be in war. Arbitration respects this dictate, by providing a disinterested party as a judge. Then, again, the custom of war affords the strong an opportunity to oppress the weak, and the ambitious to pursue their schemes of conquest and aggrandisement. Arbitration is a check to oppression and ambition, and the best security of the defenceless. And again: the custom of war, by which nations take their position on what they denominate the point of honour, refusing to make the proper concessions and overtures for the preservation of peace, and sacrificing justice itself to resentment and pride, is one vast system of duelling. The principle of international arbitration is the principle of order and peace, on a scale of equal magnitude. In short, every reason that can be urged in favour of the peaceful adjustment of individual disputes, and against a resort to individual violence, can be urged with as much greater force in favour of international arbitration, and against war, as the evils of war exceed in every respect the evils resulting from individual combat.”

There is another state of mind which must be particularly noticed, since it cannot properly be said to be included in any one of those I have enumerated: it is that

uneasy, discontented temper which causes men to vex and fret themselves at those petty occurrences which ought not to give the least annoyance. There are persons who seem to be always on the look-out for events that may afford them some excuse for expressions of anger and passion ; who are unhappy when they have no opportunity for finding fault ; and who, when there is nothing of the kind in their own affairs, pry into those of others for the purpose of discovering incentives to their ill-humour. It is of no avail to tell such persons that they cannot, by thus brooding over their misfortunes, as they term whatever displeases them, remove or alleviate them : they desire to do neither the one nor the other. Their perverted minds feel a pleasure in giving utterance to the restless thoughts by which they are agitated.

An anecdote lately told me affords a very good illustration of this wretched class of individuals. A lady rented a cottage of a friend, who, some time after she had taken possession, called to inquire how she did ; she replied, that she should be very comfortable if she had not so much rent to pay : he at once consented to reduce it one-half. Next year he again paid her a visit, and found her still discontented ; she said she was not much better off than before : as he was desirous to render her comfortable, he again reduced the rent a fourth of its original amount. On a subsequent visit the same complaints were uttered ; and her generous friend consented to let her occupy the cottage rent free. But even this was insufficient to make her contented. When her landlord again called on her,

expecting to find her now quite comfortable, she undeceived him by saying she was very miserable because she could get no rest on account of the incessant noise made by his troublesome peacock on her wall!

There is another class of persons, who, possessed of whatever is necessary for present enjoyment, are yet rendered constantly unhappy by their anxiety about the future; who ruin their health, and destroy their happiness, by indulging in gloomy forebodings of coming evils. Such persons forget that they cannot by so doing avert any misfortune; that the true art of living is, to be contented and thankful for the means of happiness now at their command, and to be hopeful and trustful as regards the future.

This state of continual exacerbation and irritation is more fatal to longevity and happiness than almost any other form of mental excitement; and it is one exceedingly common.\*

The last habit I shall mention as tending to produce mental excitement, is that of drinking intoxicating liquors; the effect of which, as we have seen, is directly upon the brain and nervous system, and through them upon the

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\* Mr. Abernethy says, "the state of men's minds is another grand cause of their complicated maladies. Many people fidget and discontent themselves about what cannot be helped; and as passions of all kinds—especially malignant passions—pressing upon the mind, disturb the cerebral action, they necessarily do themselves much harm."



mind. Ardent spirits are often resorted to by persons whose minds are in a state of excitement from other causes; they invariably augment the excitement, and frequently render it fatal.

Before proceeding to expound the effects upon health of these various states of mind, it will be useful again to advert to the functions of the brain, and to give some examples of them.

The brain is the organ of the mind—the organ which is exercised whenever an intellectual act is performed, or a sensation or sentiment experienced. It is also the chief of those bodies from which proceeds the nervous fluid; a due supply of which is as necessary to the carrying on of function as the blood—necessary to the carrying on of the function of the brain itself, as well as of every other organ of the body.

That the condition of the mind has a most important influence upon the nervous fluid, either in respect to its quantity or its quality, or to both, is a point that appears to be completely settled by such cases as the following, which are by no means of rare occurrence.

An individual hears unexpectedly that some great calamity has befallen him—that a dear friend is dead—or that his affairs are ruined;—in an instant he becomes paralytic—loses all power over one or more of his limbs, or even over the whole of his body. How is this? His muscles and bones remain unchanged, but he is no longer capable of setting them in motion—the stimulus by which his mind directed them is gone, and with it his power over

them ; and although he may after a time appear to recover from the shock, yet the injury inflicted by it upon the vital functions is too extensive and deep ever to be wholly remedied,—and its victim is generally hurried to his grave long before his time.

The same cause operates, though less strongly, when a person about to partake with a strong appetite of a repast, receives unwelcome news—he turns away with disgust from the food he would a moment before have relished, having lost all sense of hunger.

It is well known that the depressing emotions of fear, despair, &c. produce a liability to disease in circumstances otherwise harmless. For example, persons who entertain great apprehension of the cholera are very likely to be seized by it ; and it is the same with other diseases. Sir George Ballingall, in his valuable work on Military Surgery, states that about 5 per cent is the usual proportion of sick in garrison healthily and favourably situated ; while during a campaign it is 10 per cent. But such are the beneficial effects of success and cheerfulness, that in the French army, after the battle of Austerlitz, there were only 100 invalids in a division of 8000, or one in 80.

Having thus sufficiently proved the influence of the mind upon the health, I proceed to point out the injuries resulting from the various forms of excessive mental labour and excitement.

Innumerable have been the attempts to discover the seat of the soul, which some have supposed to be in the pineal gland, others in the corpus callosum, others in the

cerebrum, and some in the cerebellum. If those who have devoted their energies to the solution of this question, which after all is of a purely speculative character, had spent but a tithe of their labours in the inquiry after the principal seat of disease, the world would have profited much more by their exertions. If it be in any one part more than another, I am inclined to think that part is the semilunar ganglion and solar plexus, situated near the stomach, in connexion with the great sympathetic nerve and its ganglia—parts which exercise a leading influence on all the organs of the body, particularly on the ear and eye, and which are supposed to be indispensable to secretion, nutrition, and circulation, and to be the source of a multitude of diseases.\*

The connexion between the brain and the stomach is of the most intimate kind; hence the latter organ is sure to be implicated in any disturbance of the functions of the former. Mr. Abernethy, in his *Lectures on Anatomy, Surgery, and Pathology*, says, “there is no hurt of the head that does not affect the digestive organs.” A severe

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\* In the last edition of my *Treatise on the Ear*, by means of engravings I have shewn the organs of sensation, with the distribution of their nerves from their origin to their termination, and also the great sympathetic nerve (which going to most of the vital organs, sends off nervous filaments to the stomach likewise), exhibiting the semilunar ganglion and solar plexus, and their connexion with the organs of hearing and sight; many obscure diseases of which arise from derangements of the stomach and its nerves.

blow on the head is generally followed by vomiting and sickness : and, as already noticed, a sudden mental shock at once takes away the appetite and weakens the stomach. It is not surprising, therefore, that dyspepsia (frequently bringing on gout) should be one of the most common forms of disease occasioned by undue excitement of the mind ; nor that some persons should be inclined to refer to the brain as the primary seat of most gastric complaints, and to ascribe but little comparative importance to diet.

The greater number of persons afflicted with dyspepsia are to be found among care-worn speculators, stock-brokers, and ardent students, or among those whose nervous system has by injudicious education been too greatly developed, and rendered readily excitable. “The expenditure of nervous influence in intense study or professional business,” says Dr. Billing, “especially if anxiety be combined, withdraws so much of it as to diminish the energy of the digestive organs ; and in this way the cares of business become the fruitful source of indigestion and gout, particularly if, as in great cities, perpetual feasting add to the labours of the stomach.”\* Most persons begin to be troubled with indigestion about the age of five and forty, when they discover that things which they might formerly have eaten with impunity now derange the stomach, unless they are careful and moderate. There can be no doubt that sedentary habits concur with mental excitement in producing dyspepsia ; exercise derives much

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\* First Principles of Medicine.

of its utility in these cases by determining the blood from the head to the extremities.

The numerous evils that flow from dyspepsia, that is, from imperfect nutrition, no one who has attentively read this book will be at a loss to perceive. An inadequate supply of blood must necessarily produce weakness in the whole body ; and the brain itself, the original source of the malady, is not exempt from the disease to which it gives rise.

So long as excessive mental excitement is kept up, little relief can be obtained by the strictest attention to dietetics. Abstinence from mental toil, cheerful company, a country excursion, and relaxation of mind, will soon accomplish a cure where all the dietetic precepts and medicines in the world would prove inefficacious. It is now pretty generally admitted, that the use of purgatives in bilious or dyspeptic cases aggravates the evil it is intended to remove. It is still, however, very prevalent, and is likely to continue popular, until the public is better informed upon this subject.

It is well known that persons in good health, of sound digestive organs, who take plenty of exercise, and are free from anxiety, may eat almost any thing, in quantities which would kill those in different circumstances. In reference to this point, Dr. Brigham observes :

“ We do not find dyspepsia prevalent in countries where the people eat most enormously. Travellers in Siberia say, that the people there often eat forty pounds of food in one day. Admiral Saritchoff saw a Siberian



eat, immediately after breakfast, twenty-five pounds of boiled rice, with three pounds of butter. But dyspepsia is not a common disease in Siberia. We do not learn from Captain Parry or Captain Lyon, that their friends the Esquimaux are very nervous and dyspeptic, though they individually eat ten or twelve pounds of solid food in a day, washing it down with a gallon or so of train oil. Captain Lyon was, to be sure, a little concerned for a delicate young-lady Esquimaux, who ate his candles, wicks and all; yet he does not allude to her inability to digest them."

Another form which disease, occasioned by intense study and excitement, sometimes assumes, is violent fever. The whole nervous system is affected, and, by too powerfully stimulating the heart and the entire circulation, induces inflammatory action. Of this there is a striking instance in Dr. Paris's Life of Sir Humphrey Davy, who, in 1807, was reduced to the brink of the grave by the long-continued exertion and excitement attendant upon his discovery of the alkaline metals.

When such excitement is permanent, it often produces organic disease of the heart.

We have now to consider the diseases of the brain itself, arising from the various causes already detailed, and from the following *physical* causes, viz. injuries of the head, fever, suppressed evacuations, and intemperance. These diseases are displayed in the form of mental aberrations, which may be divided into the two classes of hypochondriasis and insanity.

Hypochondriasis is described by M. Andral as follows : “The love of one’s self, when exaggerated, proceeds to extreme attachment to life, and consequently to fear and horror of death. This is the first form of hypochondriasis ; but there is a second, which arises from the diminution of the sentiment of self-love, and thence results suicidal monomania.

“Hypochondriacs imagine themselves affected with diseases which they have not ; or if they have them, they exaggerate in their imaginations the extent to which they are so affected. A longer or shorter term after the invasion of the disease, the organs which are the seat of the real or pretended pains may become physically deranged.”

It appears, however, that hypochondriasis, though sometimes occasioned by excessive mental exertion, is more frequently the result of a sudden alteration in mental habits. M. Andral says, speaking of the causes, “We must place in the front rank the change in the functions of the brain which is produced by the substitution of a life of inactivity for one of occupation and mental exertion : next comes deficiency in the exercise of sensibility and movement—in a word, the abrupt cessation of the physical and moral habits. In this way we easily explain the hypochondriasis with which men of business are affected when they get rich enough to retire. It may happen that an individual may always have led such a life as never to have had his functions properly exercised : the brain cannot then attend sufficiently to external objects, but is exclusively occupied with the individual himself. Thus too

sudden or complete a degree of isolation may produce hypochondriasis. Persons may be placed in circumstances which deprive them of the requisite portion of wants and desires, &c. ; in consequence of which they become hypochondriacal, as we see among the rich.”\*

Although my chief object is to point out the dangers of too great mental activity, yet I have quoted the above passage for the purpose of shewing that exercise is necessary to the preservation of the brain, as well as of every other organ ; and that, while excessive exertion is highly injurious, total inactivity is hardly less so. The duly regulated exercise of the mind is as essential to the health of the brain, as the exercise of the limbs is to that of the muscles : healthy exercise consists in calling into moderate action *all* the faculties of the mind : the continual contemplation of one subject, by exerting a few faculties only, leaving the others unemployed, is one of the most likely means of producing hypochondriasis.

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\* For these interesting extracts, I am indebted to the London Medical Gazette, in which a translation of the learned professor's lecture is printed.

The case of Miss Bagster is a striking example of the debilitating effects of great mental dependence and inaction ; in this instance they were so remarkable as to give occasion to a verdict of lunacy. Such a case as this strongly illustrates the necessity for a well-directed moral and intellectual education ; and the folly of those who, from an injudicious indulgence of the young, suffer them to grow up untrained and unrestrained.

These considerations are sufficient to prove that long-continued retirement from the world, and from the society of our fellow-men, is not the sphere for which we are destined. In such a condition there is nothing to exercise those social feelings which we possess, nor are there many calls upon our intellectual powers; hence it might *à priori* be expected to give rise to hypochondriasis. We need not be surprised, therefore, when we are informed that the monks in primitive times, whose lives were consumed in penance and solitude, were sometimes relieved from the painful struggles of disease and despair by madness or death; and that many of them committed suicide.\*

But while the want of objects on which to exercise the mind appears to be the chief cause of hypochondriasis, the undue excitement of the passions is in most cases the origin of the sentiment opposed to the love of life and of its preservation, which is denominated "suicidal monomania."

M. Andral states, that from a table formed by M. Falret of the suicides which took place in France between 1797 and 1823, the following results appear: Of 6782 cases, 254 were from disappointed love; 92 were from jealousy; 125 from the chagrin produced by having been calumniated;

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\* Gibbon, Decline and Fall, chap. 37. Pinel, on examining the registers of the Bicêtre, found inscribed in them a great many monks and priests, a considerable number of country people, advocates, and attorneys; but not the name of a single person accustomed to the habitual exercise of his intellectual faculties.



49 from the desire, without the means, of vindicating their characters; 122 from disappointed ambition; 322 from reverses of fortune; 16 from wounded vanity; 155 from gambling; 287 from crime and remorse; 728 from domestic distress; 905 from poverty; 16 from fanaticism. In towns the cases are much more frequent than in the country, where, indeed, very few are met with: this may be easily understood, when we consider how much our great cities become theatres in which all the passions are developed.

It is a striking fact, that in France, Germany, and England, the countries that are most distinguished for their intellectual activity, the number of suicides is greater than elsewhere.

From the last report of the Registrar-General, it appears that in the year ending June 30, 1840, there were in England and Wales 943 suicides, of whom 636 were males, and 307 females. Mr. Farr, in his Letter published along with the above-mentioned document, enters at some length into the consideration of suicide. It is stated that the tendency to commit self-destruction increases up to the age of 60. At that period of life the suicidal disposition is three times as prominently manifested as at the age of 25. Five out of the 12 men in 10,000 who died violent deaths in the metropolis were suicides; 1 out of 2000 committed suicide in the year. The tendency to suicide is least among persons who carry on an occupation out of doors; and greatest among artisans who are weakly from birth, are confined in doors, have their rest disturbed, or have little muscular



exercise. The following extract conveys an idea of the proportion of suicides among persons following various occupations:—

“Of 162 ascertained suicides, of the age of 20 and upwards, whose occupations were stated, 18 were labourers, 10 tailors, 8 shoemakers, 6 seamen (1 of the 6 was a commodore, 2 captains), 5 licensed victuallers, 5 servants, 4 merchants, 4 coachmen, 4 bakers, 4 paupers, 3 medical men, 3 officers or soldiers, 3 clerks, 3 engravers, 3 cheesemongers, 3 weavers, 3 smiths, 3 masons, plasterers, or house-painters, 3 gardeners, 2 attorneys, 2 watchmen, 2 beadles, 2 printers, 2 moulders, 2 saddlers, 2 tobacconists, 2 shopmen; and there was one of each of the following:—Sculptor, artist, teacher of music, translator of languages, architect, bookseller, copper-plate printer, colourer of prints, bookkeeper, corn-dealer, cattle-dealer, coal-dealer, farrier, coach proprietor (formerly), horsekeeper, cooper, carpenter, painter and glazier, cabinet-maker, coach-maker, coach-plater, chair-maker, cane-worker, pencil-maker, pianoforte-maker, gun-maker, pocketbook-maker, comb-maker, parchment-maker, boiler-maker, brass-founder, brass-finisher, gold-refiner, jeweller, water-gilder, china-mender, dyer, grocer, greengrocer, currier, dresser of Spanish leather, hair-dresser, hemp-dresser, lodging-house-keeper, licensed hawkers, milkman, porter, patrol, waiter, pot-boy, dealer in old clothes. The professions of 8 suicides were not stated; 4 were registered ‘gentlemen.’”

When mental disease is limited in its extent, when the

perceptions and ideas are deranged only in reference to one or a few subjects, it is termed monomania—a mitigated form of insanity. Speaking of it, Dr. A. T. Thomson says, “In this form of the disease, when the delirium returns at intervals, instead of running on in the same strain day and night, the paroxysms appear periodically ; at other times the individuals seem reasonable, save when conversing on subjects within the sphere of their delirium ; and it is in vain to endeavour to perceive their insanity, unless we accidentally, or intentionally (if we are aware of the subject of their delusion) touch upon the chord of the mind which is unstrung. In many instances, however, this species of the disease is connected with the same irregular, often-desponding condition of mind which exists in moral insanity.”

We come now to the subject of insanity.

Leaving out of view, for the present, the numerous cases of insanity arising from hereditary predisposition (and this predisposition must have had its origin in the ill-regulated minds of persons in previous generations), and those occasioned by physical causes, the only remaining cause of that fearful disease is excessive mental toil and excitement. It is by far most prevalent in those countries where there is the greatest freedom of institutions, the most commercial enterprise, and the highest intellectual activity. According to the most recent estimates, for which we are indebted to the industry of M. Brière de Boismont, there is in

Spain, one insane person in	-	7181
Italy	- - - - -	4879

Holland, one insane person in	-	1046
Belgium	- - - - -	1014
France	- - - - -	1000
England	- - - - -	783
State of New York	- - - - -	721
Scotland	- - - - -	563
Norway	- - - - -	551

The inferences deducible from this table are strongly confirmed by the following, compiled by the same gentleman. Of the population of

Cairo, there is one lunatic in	-	30,714
Madrid	- - - - -	3,350
St. Petersburg	- - - - -	3,133
Naples	- - - - -	759
Rome	- - - - -	481
Dresden	- - - - -	466
Turin	- - - - -	344
Florence	- - - - -	338
Milan	- - - - -	242
Paris	- - - - -	222
London	- - - - -	200

These tables, however, it is evident, must be regarded as approximations only to correctness. It is obviously impossible to ascertain, with as much accuracy, the number of the insane in Cairo as in London; the calculation in regard to these two extremes certainly does not wear the appearance of probability; yet there can be little doubt that the general results indicated by these tables are in accordance with fact.

Respecting the United States, our information on this subject is exceedingly imperfect and scanty : in only a few States has any attempt been made to ascertain the number of the insane ; and the returns from them are far from being perfect. According, however, to reports made for the States of New York, Connecticut, Massachusetts, New Hampshire, and Vermont, the average proportion of insane and idiots is one in about 500, which is supposed to be considerably less than the true one ; but as there is no country in which complete accounts of the number of the insane are extant, it will serve for the purpose of comparison with other nations.

“ Travellers inform us that madness is an uncommon disease in Russia, and that it prevails more in the large towns than among the peasantry. The inhabitants of China appear to be nearly exempt from this disease. Dr. Scott, who accompanied Lord Macartney in his embassy to that country, heard of only one instance. It is uncommon in Persia, Hindostan, and Turkey. Dr. Madden, in his travels in Turkey, after remarking that, in countries where the intellect is most cultivated, there insanity is most frequent, adds, ‘ there is no nation where madness is so rare as in Turkey, where the people of all others think the least.’ ”\*

All travellers concur in stating that insanity is almost unknown in savage and barbarous nations ; and it appears to be nearly as rare among negro slaves in the West Indies

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\* North American Review, No. 94.

and America. It is evident, therefore, that mental excitement must be regarded as the ultimate cause of by far the larger number of the cases of insanity that occur among us; and since this disease is often so deeply implanted as to affect a long line of descendants, such excitement ought to be most carefully guarded against.

The agitation of any great political measure, the excitement of revolutions and changes, are invariably followed by numerous cases of insanity. Esquirol says it was frightfully increased during the first French Revolution; that even women, strongly affected by the events of that exciting time, bore children whom the slightest cause rendered insane. "So great," he in another place says, "has been the influence of our political commotions, that I could give the history of France from the taking of the Bastille to the last appearance of Buonaparte, by that of the insane in the hospitals, whose delusions related to the different events of that long period of history."

From the tables prepared at the office of the Poor-Law Commissioners, and published by them, which shew the number of pauper lunatics and idiots in England and Wales, it would appear, however, that mental inactivity is more injurious to intellectual health than the excitement to which persons living in towns and manufacturing districts are necessarily exposed.

The following is a statistical account of lunacy and crime in an agricultural and manufacturing district.

The total number of pauper lunatics and idiots in England is 12,668, of whom 6,044 are lunatics, and 6,624



idiots; being in the proportion of 1 to 1,038 of the total population of England, and of 1 to 807 of Wales; of lunatics solely, the proportion is 1 in 2,166 in England, and 1 in 2,252 in Wales; of idiots solely, the proportion is 1 in 1,976 in England, and 1 in 1,258 in Wales.

For the purpose of instituting a comparison on this point between the agricultural and manufacturing population of our country, the seven counties having the largest proportion of the former, namely, Bedford, Bucks, Essex, Huntingdon, Hereford, Lincoln, and Suffolk, have been taken, and the county of Lancashire is selected as the representative of the manufacturing districts, only  $9\frac{1}{2}$  per cent of its inhabitants being engaged in agriculture. The total population of the seven agricultural counties is 1,337,704, that of Lancashire is 1,336,854; the difference being only 850.

It has been seen that the proportion of lunatics and idiots to the total population of England is as 1 to 1,038; but in the above agricultural counties it is as 1 to 872, and in Lancashire only as 1 to 1,790. The proportion is as 224 to 100, or more than 2 to 1.

Separating lunatics from idiots, the number of lunatics in Lancashire is greater than that of idiots; in the agricultural districts the reverse is the case, the proportion in the former being 100 idiots to 143 lunatics; in the latter 174 idiots to 100 lunatics.

The general results of these facts may be thus stated: both lunacy and idiocy are more prevalent amongst the agricultural than the manufacturing population; lunacy

is the prevailing type of mental derangement amongst the latter, and idiocy amongst the former. Idiocy may be regarded as arising out of a lower average intellectual status of the population than lunacy, the latter being the unhappy concomitant of luxury and high civilisation.

It is clear from these statements, that in this country at least, the diffusion of education, and the increase of intelligence, so far from operating unfavourably upon the mental condition, tends powerfully to secure it from disease; and thus we have an additional argument (if that were needed) in favour of both. The publication of the documents to which we are indebted for this valuable information was opportune. Occasion had been taken to prejudice the cause of national education, from the opinion of physiologists that mental derangement becomes more prevalent as knowledge and intelligence are more widely spread; an opinion the correctness of which cannot be denied, if limited to the comparison of barbarous with civilised nations: but no one, I suppose, would wish that the human race should retrograde into barbarism, in order that it might be free from insanity: yet any step short of this would be wholly unavailing; for when once the great body of the people has emerged from this state, and has made any advances in knowledge, the increase of that knowledge, the elevation of their moral and intellectual nature, is directly conducive to mental health and vigour.

It is the general opinion of persons who have paid attention to the subject, that insanity is on the increase in those countries where it is already most common: this is

exceedingly probable, since it is a malady more frequently transmitted than perhaps any other; and the sources of excitement are by no means becoming fewer, or less extensive in their operation.\* Persons who inherit a predisposition to this dire disease have, of course, more to fear from excitement than others; they ought to be studiously careful to avoid whatever may tend to rouse their passions, or require great mental exertion.

And here I may revert to a subject into which I have already entered at some length—the effect of early mental culture. If, as we have seen, whatever unduly excites the mind has a tendency to produce insanity—and if the excitability depends greatly upon the condition of the nervous system, it must be evident that the premature development of the brain,—which, as I have elsewhere shewn, weakens and renders it highly irritable, and which is almost universal in America, and is by far too common in this country,—must largely contribute to the spread of insanity. The training of the young, however, ought not to consist in merely allowing the mental faculties to develop gradually—it must be of a positive kind, and be directed in the first years of life to the due regulation of the passions. In Dr. Pritchard's *Treatise on Insanity*, he makes the following excellent remarks on education: “There are two different points of view under which the

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\* According to a late report of the Middlesex Lunatic Asylum at Hanwell, it appears that the number of patients in that excellent establishment was 611.

injurious effects of wrong education may be considered. By too great indulgence, and a want of moral discipline, the passions acquire greater power, and a character is formed subject to caprice and to violent emotions: a predisposition to insanity is thus laid in the temper and moral affections of the individual. The exciting causes of madness have greater influence on persons of such habits than on those whose feelings are regulated. An over-strained and premature exercise of the intellectual powers is likewise a fault of education which predisposes to insanity, as it does also to other diseases of the brain."

Before I quit the subject of mental excitement, I will make a few observations on one cause of that evil which I have not yet mentioned:—the improper choice of professions.

Parents and friends too often forget, that in determining the future pursuits of the young under their care, it is not enough that a profession is respectable or lucrative, or one in which the youth may be expected to succeed by means of family influence: in addition to these circumstances, they ought to take into account the talents, disposition, and natural bent of the mind of the individual immediately concerned; for if this most important item be omitted in their calculations, the probability is, that if he have any individuality of character, they will seriously mar his happiness, while endeavouring to the utmost of their power to promote it.

What can exceed the wretchedness of the man compelled by such mistaken kindness to engage in a profession

requiring the constant exercise of faculties which he possesses in a very limited degree? Scarcely a day passes in which the conviction of his unfitness for the performance of his duties is not forced painfully upon his mind ;—and what deep humiliation must there be in that conviction! what constant anxiety and apprehension of the discovery of his incompetency—and what despair and misery, should the discovery be made!

The injury thus inflicted upon the mind and health is incalculable; and often is the consequence premature death—suicide even.\* It is therefore obviously the duty of parents and guardians, previously to fixing the destination of the young, to ascertain, as far as is possible, their fitness for the intended employment. This is by no means so arduous a task as might at first sight be supposed. A few observations may assist in the performance of it.

First, then, every vocation requires for its successful exercise certain physical qualifications—qualifications that may be comparatively unimportant to members of other professions, but essential to those of each particular profession. It might have been supposed that this truth, at least, would not be neglected—inasmuch as no abstruse analysis or patient observation is needed to ascertain, in any given case, whether the requisite physical qualifica-

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\* A striking case of this kind was related a short while ago in the public prints, to the following effect :—A young man, who held a situation in a merchant's counting-house, finding himself incompetent to perform its duties, put an end to his existence!



tions are possessed in the necessary measure. Yet we frequently see men whom nature intended for tailors at the anvil, and blacksmiths on the shop-board; persons of active frame and sanguine temperament confined at a sedentary employment; and those whose bodies and minds are formed for quiet, tranquil labours, sent forth to encounter the terrors of the ocean. And often, indeed, in that most fitting place for the exercise of the noblest eloquence, the pulpit, do we find men who, by their defective, unharmonious utterance, would deprive of all force the soul-stirring outpourings of a Demosthenes or of a Cicero.

The mental qualifications of an individual may generally be accurately determined by parents and teachers. A little observation will certainly reveal the leading tendencies of his mind, which will be found to indicate his predominant talents or faculties, and ought therefore, as a general rule, to be taken as guides in the choice of a profession. Seldom, however, are they sought for, or, even if they openly manifest themselves, attended to: the considerations that determine an individual's sphere of action are of every kind except the right; and it is not always that the mistakes made by this means end so happily for the subjects of them as in the following case. The anecdote was current in the hospital at Haslar many years ago.

A gentleman having a son, whom his mother had cherished the hope of seeing arrive at distinction in the navy, in compliance with her desire sent him to sea as a

midshipman, under the care of a relative. Shortly afterwards an engagement took place; the boy, who was very young, was much terrified, and during the action hid himself in the ship's copper, where he was discovered by the men, who reported him to the officer on duty. As soon as the ship returned home, the admiral dismissed him and sent him to his father; who, instead of reproofing him, observed that he had displayed a good deal of cunning; and, though unfit for a sailor, would most likely make an admirable lawyer!

The important influence which the choice of a profession exerts should make parents especially careful to place their offspring in situations for which their temperament and aptitude fit them: to assist them in so doing, I shall subjoin a few brief remarks, shewing the effects of some of the principal professions upon health, and point out the physical qualifications necessary for, and the precautions to be observed by, those who engage in them.

Naval officers are exposed to great and rapid changes of climate, and to many endemical diseases, such as the yellow fever in the West Indies, and liver-complaints in the East. But those more fearful diseases which were formerly so rife on ship-board, and which arose from ignorance or neglect of the necessary preventive measures, are now, owing to the introduction of a better system of administration, almost unknown; so that there are few professions more favourable to health than that of guiding and controlling the "wooden walls of Old England."

The military profession is one which frequently sub-

jects its members to great and long-continued hardships ; and so far it is unfavourable to health. But when in garrison, or not engaged in actual service, soldiers are placed in easy circumstances, and but for the abuse of leisure, might enjoy excellent health. Military officers are often inactive, spending their time in-doors, and living luxuriously. Old officers are generally extremely careful of their health ; and, being free from anxiety and care, frequently reach a very great age.

The exposure and vicissitudes incident to service in the Navy and Army render it highly important that those who propose to enter either of these professions should possess a considerable degree of robustness and health. No one is enlisted as a private soldier without first undergoing a strict medical examination ; and those who have any infirmity or physical defect, such as deafness or imperfect vision, are at once rejected. It would be well if this rule were adopted in reference to officers as well as privates ; certainly it is of far more importance that they should be perfect men, capable of undergoing great hardships, and of bearing up against them. At present it frequently happens that little care is taken by the military authorities to prevent weak and delicate persons from becoming officers ; hence it has been remarked, that young officers are often first on the sick-list while engaged in expeditions or on foreign service.\*

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\* The habits of many young officers in this country are not such as to prepare them for hard service. I recollect a subaltern,

Persons going out from this country to reside in tropical climes, such as officers in the service of the East India Company, or civilians, are exposed to considerable danger; many valuable lives are lost every year from want of the necessary precautions to prepare the system for encountering the great change of climate. As this is a subject affecting not only this very numerous class, but, to some extent, the members of the naval and military professions also, I shall here state the more important rules for the preservation of health under such circumstances.

Strict temperance is indispensable. As soon as the warm latitudes are reached, the preparatory regimen should be begun; the principal items of which are, abstinence from fermented liquors, and a spare diet. On arriving at places within the tropics, every excess is dangerous; temperance in all things is essential to the health of persons of every age and sex: great self-denial and

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who, being on the Haslar guard, had sent to him from the barracks a large dressing-case, clean linen, several pair of boots, a military cloak, a foraging-cap, a bottle of lavender-water, a large German pipe, a bundle of cigars, and—a poodle dog! All this paraphernalia was destined for the convenience of its luxurious owner during a quiet service of four-and-twenty hours! His companion on duty, the captain of the guard, an old officer in the garrison battalion, who had seen much service abroad, observed that he should like to see him bivouacked in wet weather in a turnip-field, in an enemy's country!



abstinence for a while being the best security against illness. To the neglect of these simple precautions, the fearful mortality which so generally prevails among Europeans on reaching the tropics is mainly attributable. Dr. Thomas in his *Modern Practice of Physic* recommends the plethoric and robust, on their approach to the warm latitudes, to be bled in proportion to their strength, and the use of purgatives and emetics. He tells us also, that “the effects of temperance as a prophylactic, are strikingly demonstrated by Dr. Chisholme, who observes, that while the yellow fever raged at the island at Grenada, the French inhabitants, whose mode of living compared with that of the English is temperate and regular in an uncommon degree, were almost totally exempted from the disease.”

Residents in the East or West Indies should be very careful in the choice of the situation of their dwellings: the more elevated, and the further removed from all kinds of water, the better. In such climates, exhalation takes place to an extent of which we can form but little conception; hence the atmosphere in the proximity of stagnant water and swamps is generally loaded with pernicious vapours, producing obstinate intermittent and jungle-fevers, liver-complaints, and putrid diseases. To this cause are in a great measure attributable the fearfully destructive fevers of the African coast, especially the endemic fevers of Sierra Leone, the colony which bears the awful name of “the white man’s grave.”

Those who are compelled to reside near low, marshy



places should sleep from them as often as possible, the air being most vitiated at night: for the same reason, all exposure at that time should be avoided. In case of illness, the first measure to be adopted is the removal of the person from such situations into some elevated region, where the air is pure: this alone is sometimes sufficient to effect a cure.

Exposure to wet or damp is highly dangerous; and exertion in the sun, or during the heat of the day, not less so. Both these evils are incurred by the practice common with many officers of shooting snipes in the paddy, or rice-fields, which are covered with mud and water: the feet of the sportsmen being kept quite cool, while the upper part of the body is exposed to an Indian sun.

The abundant tiffins, or luncheons, furnished at Indian tables are very unwholesome. The lighter the morning's repast, the better; especially as dinners in that country are late and luxurious.

By attention to these rules, the danger incurred by visiting the tropics would be much diminished; and although nothing can entirely ward off the influence of so complete a change of climate as is encountered by natives of countries situated in the temperate zones, in going thither, it would thus be rendered far less destructive to health and life than it is at present.

It is a prevalent error in the East Indies to attribute all maladies to affections of the liver; hence the almost universal practice of taking large doses of calomel. The ganglionic plexus of nerves of the stomach, which, as I

have shewn in my other works, exerts so powerful an influence over every part of the system, is quite as frequently affected as the liver; in which case the use of mercury is not only wholly inefficacious, but often induces other diseases: a truth discovered by many persons on their return to this country; and several examples of which I met with at Cheltenham a short time ago.

The profession of the law in its higher grades is one which demands great and constant mental exertion — which is too often combined with almost total muscular inactivity; the consequences of which, having been already sufficiently expounded, need not here be repeated. I would recommend all persons who devote themselves to close study, of whatever kind, to take regular exercise in the open air, on horseback or on foot, two or three hours a-day at the least, to be abstemious in diet, to avoid low desks and soft seats, not to study late at night nor too long at a time, and if the subject of attention be sometimes changed, so much the better.

The clerical profession, in its relation to health, has many points of resemblance with that of the law. The lungs of clergymen are frequently injured by excessive exertion, and become the seat of fatal diseases. Persons having delicate lungs should hesitate before they enter any profession requiring great exercise of those organs; and having entered it, should carefully abstain from long or vehement speaking.

The members of the medical profession are exposed to many morbid influences from which other classes of the

community are exempt, and in endeavouring to preserve the lives of others, often sacrifice their own : *aliis inserviundo consumuntur, aliis medendo moriuntur*. Mr. Thackrah seems to be of opinion, that the mortality among medical students is great ; and dissents from Ramazzini, who says, that medical practitioners are comparatively free from ordinary diseases, in consequence of their good exercise, and their hilarity of mind when they go home with their fees in their pockets, “ *Dum bene nummati, lares suos repetunt.*” Persons designed for this profession should have strong nerves, and a sufficient feeling of self-reliance to enable them to act and think independently. Not only are these qualities necessary to preserve them from the excessive anxiety too often incident to their vocation, but also to render them indifferent to the envy and hostility, both open and concealed, which, should they attain to any eminence, they are sure to encounter from their less fortunate competitors. The man who turns aside to answer every cavilling objection, or to refute every malicious calumny with which he may be assailed, must necessarily pass the greater part of his time in disputes, hurtful both to his health and his prospects, with opponents who do not deserve the distinction of being noticed, and whose fittest punishment is contempt. Those who enter this profession should also be persons of somewhat robust frames and strong constitutions ; since there can be no doubt that it is one requiring great bodily as well as mental exertion.

The musical profession, in its two departments, vocal and instrumental, is one which, in this country at least, is

unfavourable to longevity. Its members are subjected to many unhealthy influences, and in particular to great anxiety and care, from the caprice and whims of their hearers. "Singers and persons who play much on wind-instruments are subject to pains in the chest, diseases of the larynx, œdema of the glottis, pulmonary emphysema, and spitting of blood."\*

From the latter class of evils performers on stringed instruments are in a great measure free; and it is no unusual sight to see grey-headed veterans gaily pursuing their harmonious vocation. For instance, Mr. Lindley (the incomparable violoncellist) and Dragonetti (the able performer on the double bass) are both elderly men; while Mr. Nicholson, the late celebrated flute-player, died a short time ago at a comparatively early age.†

Vocalists are frequently afflicted by the nervous affection called *globus hystericus*, which completely prevents utterance. This affection, like all other nervous ones, may often be avoided by attention to the general health, and by abstaining from excesses of every kind.‡

\* Thackrah, p. 174.

† There have been, I am informed, several instances of performers on wind-instruments attaining a considerable age; but these are exceptions. It must also be recollected, that there is a wide difference between concert-players, whose exertions are only occasional, and musicians in a military brass band, for instance, who perform every day.

‡ The musical profession is often accused of unwillingness to



No occupation, perhaps, is more conducive to health than that of commercial travellers. They have abundant exercise in the open air, and live in plenty ; and but for occasional free indulgence in fermented liquors, they might generally attain old age. In this respect, however, there has been much improvement within the last few years ; the account which Mr. Thackrah has given of this respectable class is certainly not *now* applicable to them. Formerly it was no unusual thing for some of them to take twenty glasses of spirits-and-water in a day ; but they are now, as a body, temperate, abstemious, intelligent, and well-informed. Although some of them are occasionally *deaf*, yet, for the most part, they have their *eyes* wide open.

But it is time to return from this digression to the subject from which it has led us.

Having shewn the bad effects of mental excitement, it may add to the force of those statements to point out the beneficial effects of mental tranquillity and relaxation.

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devote their services occasionally to the cause of charity ; but this accusation is by no means well founded. At various times many of its most distinguished members, both Foreign and English—among whom I may mention the inimitable Paganini—have gratuitously performed for the Royal Dispensary for Diseases of the Ear ; which indeed may be thought to have a peculiar claim upon them, inasmuch as the object of its care is the organ whose office it is to convey to the mind the perceptions of harmony.



I have in the foregoing pages more than once noticed the healthful influence of a cheerful, well-regulated frame of mind upon the various functions of the economy ; this is owing to the quality of the nervous fluid, which is, as we have seen, so much dependent on the mental state. If, then, this frame of mind be habitual—if no violent passions disturb its serenity—it it be free from the vexatious cares of public life and of party—it must conduce to lengthen life, and to promote human happiness.

I may refer to the Society of Friends as a proof of the truth of these assertions. As a body, they are temperate and industrious, quiet and unobtrusive ; their lives appear to flow on in a calm, unruffled stream, and are consequently of longer duration than those of any other extensive class of the community ; as appears from the annexed statement, which was published a year or two ago.

“Inquiry has been made by the Society of Friends throughout England as to the average length of life of persons belonging to their Society, as compared with that of other individuals. The result is in general highly favourable to the superior longevity of Quakers ; but in Chesterfield particularly so, as the following plainly shews : the good effects of living with temperance and frugality could not be more clearly demonstrated. United ages of 100 successive burials in Chesterfield churchyard, ending 16th November, 1834, 2516 years 6 months ; which gives an average of 25 years 2 months : two of these persons reached the age of 80 and upwards ; and 12 reached the age of 70 and upwards. United ages of 100 succes-

sive burials of members of the Society of Friends in Chesterfield monthly meeting, ending 27th November, 1834, 4790 years 7 months; which gives an average of 47 years 10 months: 19 reached the age of 80 and upwards, and 30 reached the age of 70 and upwards." So that, in this particular locality at least, the proportion is nearly two to one in favour of the Quakers.\*

Many persons will doubtless be ready to exclaim, that it is impossible to preserve a state of equanimity amid the bustle of business and the contentions of society. There is truth in the objection; I am far from thinking that, as society is at present constituted, men can place themselves in strict conformity to the laws of nature. Still, there is much unnecessary agitation and excitement; and by pointing out their evils, I shall perhaps induce some persons to reduce them to their minimum amount.

As an antidote to the residuum, I earnestly recommend frequent mental relaxation, and a participation in innocent pleasures. Those who cannot make the grand tour of Europe, can at least make the pedestrian tour of Hampstead and Highgate, &c. A short trip into the country, even for a single day, is exceedingly beneficial, by diverting the mind from the ordinary objects of contemplation, and removing from it for a time that load of anxious cares,

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\* The author's relatives were all Quakers. When he was twelve years old, he had living, and in good health, two grandfathers, two grandmothers, his mother, and his father the late Dr. John Curtis, who died not long since at an advanced age.

which, if suffered too long to remain, destroys its elasticity. At least once a year a jaunt of a week or two should if possible be taken by every one; the communications by land and water to every part of this country are now so abundant and so economical, that there are few indeed who could not afford it if they wished; in the end such expenditure would probably be the means of saving a larger sum, by improving the health, and enabling men to engage in the various occupations of life with greater energy. For a few pounds a person may visit the lakes of Cumberland and Westmorland, the mountains and lochs of Scotland, or the picturesque scenes which abound in the Emerald Isle, and inhale strength and vigour from the ocean's breeze; he may store his mind with the recollection of the beauties of nature, and of the various pleasing occurrences that befel him while absent from home; and in the midst of the crowded city, and of pressing occupations, he may often relieve and amuse his harassed mind by the contemplation of these intellectual images.

The weekly cessation from the toils of business, which is generally observed in Christian countries on the first day of the week, is a practice at least as conducive to the welfare of the body as of the soul; and one which will be more inviolably kept, when men become better acquainted with the conditions on which their health depends. Nothing could be more inexpedient, as regards merely the present interests of mankind, than the abandonment of this practice, viewing it as a matter of political economy; for there can be no doubt that the capacity for labour is

increased by occasional rest from it; and that if every day in the year were devoted to labour, the produce of that labour would be less than it is at present.

If the time thus rescued from labour were made the best possible use of, how much might it not effect for the mental and bodily improvement of mankind! It affords an opportunity for intellectual, moral, and physical training, which has not yet been turned to the best advantage.

Of the miscellaneous subjects to which we are now to direct our attention, the first that claims it, from its important influence upon health and longevity, is *marriage*, in reference to which Thomson, in a well-known passage, has said :—

“ But happy they—the happiest of their kind—  
Whom gentler stars unite, and in one fate  
Their hearts, their fortunes, and their beings blend.”

That the poet is right, there can be no doubt. The matrimonial state, when entered into at the proper time and between suitable parties, is certainly conducive to health and happiness. It is a state for which man is formed, and in entering into which, therefore, he obeys the organic and moral laws—disobedience to which, as I have shewn, must inevitably be attended with evil of some kind or other.

This opinion, however, is not based on general principles alone, but is supported by statistical researches, the results of which were published a short time ago by Dr. Casper of Berlin, who informs us that Odier, who first set



on foot exact inquiries respecting the influence of marriage on longevity, found that, in the case of females, the mean duration of life for the married woman of 25 was above 36 years; while for the unmarried it was about  $30\frac{1}{2}$ . At 30 there was a difference of four years in favour of the married; and at 33 two years, and so on. With regard to men, we gather from Deparcieux's and the Amsterdam tables, that the mortality of those from 30 to 45 years is 27 per cent for the unmarried, while it is but 18 for the married; and that for 41 bachelors who attain the age of 40, there are 78 married men. The difference becomes still more striking as life advances. At the age of 60 there are but 22 unmarried men alive for 48 married; at 70, 11 bachelors for 27 married men; and at 80, for the three bachelors who may chance to be alive, there are nine Benedicts. The same proportion very nearly holds good with respect to the female sex: 72 married women, for example, attain the age of 45, while only 52 unmarried reach the same term of life. M. Casper, in conclusion, considers the point as now incontestably settled, that in both sexes marriage is conducive to longevity.

That the marriage-state is favourable to mental as well as to bodily health, is strongly shewn by the fact noticed in the lecture of M. Andral from which I have already quoted: viz. that in France two-thirds of the suicides are committed by bachelors; and he adds that the same remark has been made in this country.

But "to make marriages answer the purpose of health, and the other objects to be kept in view in the connubial



state, there ought to be a parity of station, a similarity of temper, and no material disproportion in years. It is owing to the want of some of these most essential requisites, that the married state proves so often the source of misery, instead of joy and comfort.”\*

The opinions of physiologists as to the earliest age at which the contraction of marriage in this country is advisable are various—some fixing it for the male at the age of 21, others at 25, and others even at 28; but most writers on the subject agree in regarding the 18th year of the female as the earliest at which it ought to take place. This, however, is a point which must depend upon a great variety of circumstances; and though marriages entered into while the frame is still rapidly developing are undoubtedly injurious, yet varieties in constitution are so numerous and so great, that it is impossible to lay down a rule universally applicable. It may, however, be considered as certain, that marriages on the part of males before the age of 21 are hurtful.†

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\* Code of Health.

† “ The second cause of the shortness of the average duration of life during the fourteenth and fifteenth centuries, is traced to the very early age at which marriages were then solemnised. The day of nature’s trial came before the constitution had gained strength for the struggle; and an awful proportion of females was thus prematurely hurried to the grave, whilst the offspring also shared in the weakness of the parent.”—TYLER’S *Henry of Monmouth*.

If we regard marriages as they affect the offspring, we must take into account many circumstances which do not affect the parties marrying.

It appears to be a law of nature, that frequent inter-marriages among a particular family, class, or nation, have a tendency to produce mental and bodily degeneracy ; and the more limited the circle to which they are confined, the greater is the degeneracy. This accounts for the fact that the children of cousins, or other near relations, are so often weak in intellect—sometimes even idiotic. It is well known that idiocy is by no means rare in some of the royal and noble families of Spain and Portugal, among which the practice of marrying nieces and cousins prevails.

The predominant states of mind of the mother during the period of gestation seem to exercise great influence on the character, bodily and mental, of the child. If such be the case, the following advice, given by the Margravine of Anspach in her *Memoirs*, deserves serious attention : “ When a female is likely to become a mother, she ought to be doubly careful of her temper ; and, in particular, to indulge no ideas that are not cheerful, and no sentiments that are not kind. Such is the connexion between the mind and body, that the features of the face are commonly moulded into an expression of the internal disposition ; and is it not natural to think that an infant, before it is born, may be affected by the temper of its mother ? ”

I cannot refrain from quoting the following excellent

remarks on this subject from Dr. Caldwell's Treatise on Physical Education. "The avoidance by females, while pregnant, of every thing that might injure them, cannot be too strict. Nor is this all. They should take more exercise in the open air than they usually do. The feeling which induces many of them to shut themselves up in their rooms for weeks and months before parturition, is an excess of delicacy—were the term less exceptionable, I would say, false delicacy—and ought not to be indulged. Their food should be wholesome, nourishing, and easy of digestion, and should be taken in quantities sufficient to give them their entire strength, and maintain all their functions in full vigour. Their minds ought to be kept in a state of tranquillity. In a particular manner, the effects of frightful appearances, alarming accidents, and agitating and impassioned tales and narratives, should be carefully guarded against by them. The blighting operation of the 'reign of terror,' in Paris, on the children born during that period, furnishes fearful evidence of the influence of the distracted and horrified condition of the mother over the system of the unborn infant. An unusual number of them were still-born. Of those who were not so, a number equally uncommon died at an early age; and of those who attained adult life, an unusual proportion were subject to epilepsy, madness, or some other form of cerebral disease."

The late Dr. Curtis, who practised as an accoucheur for upwards of fifty years, used to assert, that if females when pregnant would move about and take exercise in the open air, instead of lounging upon sofas, 99 births out of 100

would be natural, and deformities would rarely occur.\* Such was also the opinion of his grandfather, Mr. John Curtis, who followed the same profession.

The transmission of mental qualities may still be somewhat open to doubt, but there is the strongest proof that physical qualities are in most cases communicated; and therefore, in the words of Dr. Caldwell, as “ respects persons seriously deformed, or in any way constitutionally enfeebled—the rickety and club-footed, for instance, and those with distorted spines, or who are predisposed to insanity, scrofula, pulmonary consumption, gout, or epilepsy—all persons of this description should conscientiously

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\* “ The very easy labours of negresses, native Americans, and other women in the savage state, have often been noticed by travellers. This point is not explicable by any prerogative of physical formation; for the pelvis is rather smaller in those dark-coloured races than in the European and other white people. Simple diet, constant and laborious exertion, give to these children of nature a hardness of constitution, and exempt them from most of the ills which affect the indolent and luxurious females of civilised societies. In the latter, however, the hard-working women of the lower classes in the country often suffer as little from a child-birth as those of any other race. Analogous differences, from the like causes, may be seen in the animal kingdom. Cows kept in towns, and other animals deprived of their healthful exercise, and accustomed to unnatural food and habits, often have difficult labours and suffer much in parturition.”—LAWRENCE'S *Lectures on the Natural History of Man*, chap. ii.

abstain from matrimony. In a special manner, where both the male and female labour under a hereditary taint, they should make it a part of their duty to God and their posterity never to be thus united. Marriage in such individuals cannot be defended on moral grounds—much less on that of public usefulness. It is selfish to an extent but little short of crime. Its abandonment or prevention would tend, in a high degree, to the improvement of mankind.”

On the subject of sleep, only general rules can be given; some persons require much more than others, and the same person more at one time than another; no fixed rule therefore can be laid down on this point. So much each individual ought to have as experience tells him to be sufficient, and neither more nor less. Such rules as that given by Cullen, recorded by Boswell in his *Life of Johnson*, are absurd. “I told Dr. Johnson,” says Boswell, “that Dr. Cullen said to me, that a man should not take more sleep than he can take at once:” to which Johnson correctly replied, “This rule, sir, cannot hold in all cases, for many people have their sleep broken by sickness; and surely Cullen would not have a man to get up after having slept but an hour. Such a regimen would soon end in a long sleep.”\* On the due regulation of sleep much depends: in a special manner the health of the eyes. In reference to

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\* Bishop Ken, however, observed this regimen to his dying day, as we are informed by Hawkins in his *Life of that venerable prelate*.



this point, I have said in my "Treatise on the Diseases of the Eye," "A due portion of sleep is as essential to enable the eyes to perform their office comfortably and effectively, as a due portion of rest is to enable the limbs wearied with toil, or the mind with reasoning or other kind of exertion, to resume with alacrity their wonted offices. But sleep too long protracted, on the other hand, is perhaps hardly less destructive of accurate and healthy vision than when taken too sparingly; for as, in the one case, the organ is enfeebled by unremitting activity, without a proper degree of repose, so, in the other case, the eye, from unfrequent or insufficient exercise, becomes torpid and dull; and if inaction be persisted in, is at length unfitted for its functions."

On the use of tobacco a few remarks may here be opportune.

Tobacco belongs to the class of drugs called narcotics, and possesses many of their most noxious qualities. The excessive use of tobacco, in whatever shape it is taken, heats the blood, hurts digestion, wastes the fluids, and relaxes the nerves.

Smoking is particularly injurious to lean, hectic, and hypochondriacal persons: it creates an unnatural thirst, leading to the use of spirituous liquors; it increases indolence, and confirms the lazy in the habits they have acquired; above all, it is pernicious to the young. I am therefore glad to see that well-bred young men have very generally abandoned the obnoxious and unbecoming

custom, lately so prevalent, of smoking in the streets. In many German towns smoking is not permitted in the public thoroughfares.

This regulation is well worthy of being adopted in this country; or, if the smokers cannot deny themselves their indulgence, they should confine their walks to the bye-streets or the middle of the road, so as to offend as few persons as possible. Perhaps some one, passionately attached to the practice, might then devise a plan to enable smokers "to consume their own smoke," and thus confer a benefit upon the public only inferior in value to that which promises to clear our atmosphere of the smoke of factories and workshops.

A patient of mine, a young officer of dragoons, who was quite an amateur smoker, and used to boast of the number of cigars he could smoke in a day, produced ptyalism by his folly; and had he not abandoned the practice, he would in all probability have lived but a very short time.

The use of tobacco in the form of snuff is still more objectionable than smoking. On account of its narcotic quality, snuff is highly injurious to apoplectic persons; and not less so to those labouring under deafness, and other diseases of the head—to the consumptive, to those afflicted with internal ulcers, or subject to spitting of blood. Snuff-taking is an uncleanly habit—it vitiates the organs of smell; taints the breath; ultimately weakens the faculty of sight, by withdrawing the humours from the eyes; impairs the sense of hearing; renders breathing difficult; depraves the appetite; and, if taken in abund-

ance, gets into and affects the stomach, injuring in a high degree the organs of digestion.

Nothing conduces more to enjoyment than the perfect exercise of the functions of hearing and sight; but as in my two small works, entitled “Observations on the Preservation of Hearing, and of Sight, with Remarks on the Choice, Use, and Abuse of Spectacles and Acoustic Instruments,” I have already given, in an accessible form, all necessary practical directions on this important subject, I shall not enter upon it here, but refer such of my readers as desire information respecting it to those works. I cannot, however, refrain from cautioning them against the use of small oval spectacles, which frequently give rise to *muscæ volitantes*, and against the improper use of acoustic instruments, which in many cases aggravate the complaints they are intended to remedy, and at the same time divert attention from the adoption of curative measures. What can be more absurd than a person using an ear-trumpet when labouring under incipient deafness, an affection of the head, or the second stage of *otorrhœa*? Each of these affections is curable when remedial means are timely adopted; though, if neglected, the first often becomes permanent, and the two latter frequently prove fatal.\*

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\* The author, having paid much attention to the construction of acoustic instruments, has effected several improvements in them of considerable utility. These instruments (which are intended for the incurably deaf only) may be had of Messrs. Gifford and

Adam Smith opens his well-known work in the following words: "The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgment with which it is any where directed or applied, seem to have been the effects of the *division of labour*." The evidence he adduces in support of this proposition is conclusive, and entitles us to assert that those arts and sciences in which the division of labour is carried to the greatest extent will always approach nearest to perfection; and that, on the other hand, those in which it has taken place in only a limited degree are generally in an imperfect and uncertain state.

The slow progress which the science of medicine has made, compared with other arts and sciences, is thus in a great measure accounted for: in it there has, until recently, been scarcely any division whatever; and even at present, the treatment of all the numerous and complicated disorders to which the human frame is liable is frequently undertaken by one and the same person. Now, as a thorough understanding of many of these diseases, and of their modes of cure, cannot be obtained without the constant and uninterrupted study and practice of years, it necessarily results from this system, that such diseases are considered incurable. There is, in my opinion, no

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Linder, chemists to his late majesty, 104 Strand. The large round periscopic glasses, for the first, second, and third sight, may be obtained of Messrs. Ross and Co. opticians, 33 Regent Street.

disease without its remedy ; our ignorance alone prevents us curing the cholera or hydrophobia ;\* and the only

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\* As, however, prevention is better than cure, it is much to be wished that measures were adopted to extirpate as completely as may be the *causes* of these fatal diseases. The principal cause of cholera is clearly shewn, by the history of its destructive progress, to be inattention to cleanliness and ventilation. The great alarm excited by its first appearance in the metropolis has been the means of bringing about many improvements in this respect ; and the changes now effecting will do much to secure us still further from any such visitation again.—Hydrophobia is a malady which owes its existence to the vices and follies of man ; and may be regarded as a just retribution on him for his cruelty towards the inferior animals. Many of the uses to which dogs are put in London are directly opposed to their structure and natural habits ;—that, when yoked to a large heavily-laden cart or truck, in the middle of summer, without water, they become mad, will surprise no one who considers the formation of their bodies. Since these remarks were published in the former edition, an act of parliament has been enacted, completely suppressing the practice here reprobated. The Society for the Suppression of Cruelty to Animals has been highly useful in diminishing this evil ; and, as it springs from benevolence, it ought to be encouraged. The imposition of a tax, or rather the exaction of that which already exists, upon dogs, would much diminish their number, especially of those kept by the poor, which are the most dangerous, being scantily fed, ill-treated, and hard worked. Excessive fondness for dogs, as well as cruelty to them, is sometimes the cause of hydrophobia : ladies especially expose themselves to this danger ; by



method of getting rid of our ignorance, is to carry the division of medical labour much farther than has hitherto been effected. There is abundant encouragement for so doing. In those departments of the profession which have been practised as distinct occupations, the greatest and most rapid improvements have taken place within the last thirty years. Witness dental surgery, between which as it existed not very long ago and its present state, the labours of such men as Bell, Cartwright, and Dumergue, have made so great a difference, that operations which formerly were attended with pain and danger, are now performed with scarcely any suffering, and with perfect safety. The oculist and aurist have brought about results of a similar kind, by their undivided attention to diseases of the eye and ear; organs whose delicacy deterred the practitioners of former times from operating upon them, but which are now treated with as much safety and success as the strongest.

With the aid of the instruments described in my recent work on the Cephaloscope, we are rendered cognisant of the causes of several maladies of the organ of hearing with

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pampering and confining their unfortunate favourites, they render them irritable and snappish; many such persons have received their death-wounds while caressing their dogs. The case of the beautiful Lady ——, who suffered her lip to be licked by her lap-dog, and died raving mad (the poison having been absorbed into the circulation), shews that such amusements are often attended with danger.

which we were previously unacquainted, and are thus enabled to form a more correct and decided diagnosis and prognosis. By means of the speculum and illuminated auriscope of Grüber, we can examine the external auditory passage, and the cephaloscope lays open to us the state of the intermediate ear; so that the only portion still left in darkness is that in which the expansion of the acoustic nerve is contained: in other words, the diseases of the ear at present involved in obscurity are those of a nervous character; which are in many instances, if not in all, connected with derangement of the ganglionic or tri-splanchnic nervous system, as I have already demonstrated in my other works; and by proper attention to these and the general health, on the part of the medical attendant, they admit of cure or relief. Otorrhœa is curable, by means of a weak injection of the lapis divinus in solution, when the complaint is in the first stage, while the fungous or polypous growth can be removed by the application of a ligature by Schiller's forceps. Herpes and other cutaneous affections of the auricle are removable by the anthrokokali; while the most distressing of all the complaints of the ear, tinnitus aurium, yields to the internal administration of the arnica montana, combined with the imperatoria ostruthium, which was formerly called the *remedium divinum*. The most important subject remaining for consideration is the treatment of the deaf and dumb, whose defects, as I have shewn, are often removable when they arise from functional derangement, and there is no structural disorder.

Some practitioners are averse to any division of medical labour, which they conceive is injurious to the profession; but, as Sir W. Farquhar observed on this point, we must consider the interests of the public in preference to those of any particular class of men.

Much good has also resulted from the institution of hospitals for the exclusive treatment of various diseases; such as the Fever, Ophthalmic, Small-Pox, Lock, and other Hospitals. The great and acknowledged excellence of Her Majesty's Royal Naval Hospitals is, no doubt, in an eminent degree attributable to the fact, that the very numerous patients admitted into them are generally afflicted with the classes of disease peculiar to sailors and soldiers; and as the medical officers of these noble establishments are prohibited from attending private patients, their attention is mainly directed to surgical operations, and the treatment of diseases, numerous cases of which come before them every day.\* And here I may be per-

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\* The author was employed for nearly six years at the Royal Naval Hospital at Haslar, during the hottest period of the late war, namely, after the battle of Trafalgar, and during the expedition to Walcheren. Haslar Hospital is one of the largest establishments of the kind in Europe, and contained at one time 2000 patients: as many as 200 were admitted in the space of twenty-four hours, when the troops arrived from Corunna, afflicted with pneumonia and dysentery, and many of them severely wounded. The efficacy of such institutions in training up able medical men is sufficiently shewn by the following list of some of the eminent practitioners who have served there: Drs. Lynd,

mitted to refer to the Royal Dispensary for Diseases of the Ear, which, with the assistance of Sir Walter Farquhar, Dr. Baillie, Dr. Sims, and Mr. Cline, I founded in 1816. Its usefulness and advantages, the happy results of the labour and attention of years, are well known to the public, and have been shewn in the relief afforded by it to many thousand afflicted human beings both in the metropolis and from the country.

The advantages of the division of medical labour have been signally manifest in the results of the establishment of this Institution. Previously to that period, diseases of the ear were considered for the most part incurable; so that hundreds of unhappy beings, whose maladies, in their incipient stages, might have been readily cured, but which being neglected became inveterate and really incurable, were consigned to deafness for life. Having for upwards of twenty-five years attended almost exclusively to the treatment of these diseases, and having, as Surgeon to the Royal Dispensary, had more extensive experience than has fallen to the lot of any other practitioner in this country (having, within the last few weeks, given advice and assistance to as many as 150 patients at the Dispensary

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Hope, Maginnis, Babington (of the city), Sir J. Macgregor, Sir R. Hunter, Sir James Clarke, Weatherhead, Thomson, &c., Messrs. Fitzmaurice, Dodds, O'Reily (domestic surgeon to George the Fourth), G. Vance, Price, Hardy, &c. The treatment of the patients, and the general arrangements, have always reflected the highest credit on the commissioners and medical authorities.

in one day), I have worked out results in this branch of the profession to which I cannot refer without the highest satisfaction. Desirous that the knowledge and experience thus acquired may be as widely diffused and become as useful as possible, I have, in addition to my Treatise on the Diseases of the Ear, and my Essay on the Deaf and Dumb (both of which have been translated into German), published a Map of the Anatomy of the Ear, and a Synoptical Chart of its various diseases, with their order, seat, symptoms, causes, and treatment ; and have thus put it in the power of any one to make himself acquainted with the subject. But a knowledge of the ear, and its diseases, will never be general among the profession in this country, until the Court of Examiners of the College of Surgeons insist upon an acquaintance therewith as one of the qualifications of a surgeon. I am glad, however, that the attention of the profession has of late been more directed to the important subject of deafness—a circumstance which, in spite of several untoward events, will, I have no doubt, eventually be productive of much improvement ; and these untoward events themselves, by demonstrating the danger and inutility of rash and violent operations, will serve the useful purpose of deterring the practitioner from such hazardous experiments.

I return to the consideration of the division of medical labour, only for the purpose of expressing my desire to see more hospitals established for the reception of persons labouring under particular forms of disease. A Cholera Hospital and a Hydrophobia Hospital are desiderata, the



attainment of which would, in all probability, soon bring those fearful diseases under the power of man, and enable him to apply to them efficacious remedies. Until this is accomplished—so long as individual exertion is alone employed—we shall look in vain for these desirable results.

It has often occurred to me, that the usefulness of the public hospitals already existing might be greatly increased if the medical officers attached to them were to devote all their time and attention to their duties at those institutions, as they do at the naval hospitals. There is surely enough to be done in them to occupy all the energies, the time, and the study of the most gifted: and it is to be lamented that these noble establishments, the glory of our country, and of the metropolis in particular, should not set apart an adequate portion of their ample funds to remunerate a sufficient number of competent men to devote themselves to these duties alone.

The population of London is so great, that the following remarks, which have especial reference to the health of its inhabitants, will hardly be deemed a departure from that generality which pervades this work; the more so as most of them are equally applicable to other large towns.

It is a trite remark, that nothing but constant and long-continued exertion is sufficient to procure the removal of the most glaring evils; and that such is the tendency of men generally to persist in their accustomed modes of living and acting, that even when their inexpediency has been demonstrated by repeated exposure, it requires the

pressure of some immediate necessity to induce a change in them. In nothing is this truth more strikingly illustrated than in what relates to health, and that not only in the conduct of individuals, but also in the dealings of governments with the general public health of the multitude entrusted to their care. Hitherto this branch of the functions of rulers has been almost neglected; and whatever they have done has been of that unsystematic, desultory kind, which proceeds from the want of some general principles of action; most of the regulations promulgated on the subject having been directed to meet some one particular case or class of cases, as occasion arose to require them. Hence, on every hand, we see around us positive or negative evils affecting the health of the community, not a few of which have long been clearly ascertained and exposed by those who have directed their attention to the science of health. We may, perhaps, congratulate ourselves, however, that we are entering upon a new era in reference to this every-way most important matter, and that the labours of scientific and philanthropic men are at last to be crowned with blessed results in the amelioration of the physical and moral condition of their fellow-creatures. Of late years the attention of the public has been more than ever called to this subject; the press has teemed with works upon it; some practical improvements have been effected, and we are on the eve of others yet more extensive and decided.

A dramatic writer has called London the *fons delectabilis*; but I should like to see it deserve the appellation

of *fons salutaris* also ; and it is gratifying to know that every change which adds to its external attractions contributes to its healthiness at the same time. It has been said, “ See Paris, and die,” as if the sight of that city were the supremest enjoyment in which man could participate ; but I would much rather have it said, “ See London, and live,” and live happily and joyously too. Napoleon called us a nation of shopkeepers, meaning to reproach us with a sordid devotion to mere commerce, and with incapacity for comprehending the loftier pleasures derivable from the triumphs of art : but I doubt not yet to see the time when this reproach shall be utterly inapplicable to England ; already we have made great progress in a better state of things, and no limit can be set to our progression.

Many improvements have within the last few years been effected in the metropolis ; all of which have added to its salubrity, and rendered it a more agreeable place of residence. As a proof of this, I have been informed that many tradesmen who used to reside at a short distance from town, have come to live in London at their places of business, whereby much time and expense is saved. Among the improvements may be mentioned the widening of streets, the opening of parks and other healthy places of public resort, and the practice of building houses round large open spaces. There is yet much to be done, however, before it can be said that London is as healthy as man can make it ; and I am now about to direct the attention of my readers to some of the more important, yet easily to be accomplished, improvements of which it is susceptible.

The subject that first demands our attention is the mode in which London is supplied with water.

The Thames is the principal source of the supply ; and its water, if drawn from a proper spot, would be as good as could be desired ; but, strangely enough, the companies which monopolise the sale of this important element, take it from a part of the river which receives all the impurities of the mighty city, and where it is asserted that fish cannot exist. This is the first evil to be removed. The wants of the metropolis could not be supplied without resorting to the Thames ; but there is no necessity for using its corrupted waters. Why should not we go a few miles above London, and draw the needful supplies from the river before it reaches the city ?\*

A project recently set on foot would, if executed, do much to obviate the inconveniences of the present system : I allude to the plan for forming a vast receptacle for the contents of the common sewers, &c. &c. along the whole banks of the river ; this would doubtless improve the quality of the water : the other part of the project, viz. the construction of open walks and terraces by the river-side, would also be a great change for the better, improving the appearance and increasing the healthiness of the city.

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\* The Chelsea Water Company appears to be exerting itself to improve the quality of the water supplied by it. Their new filtering reservoirs occupy a space of 48,000 square yards superficies, and have been constructed at an expense of 57,000*l*. But if the water afterwards passes into leaden reservoirs, this improvement will be of little utility.

But supposing the water to be derived from an entirely unexceptionable source, much would still remain to be done. The mode of its distribution to, and of its reception in, dwelling-houses, has an important effect upon its quality. It is at present conveyed by leaden pipes either into leaden cisterns or wooden casks, and the purest water so conveyed and received cannot possibly be wholesome; in fact, the purer the water the greater the danger.\* Water contains carbonic acid gas;† this acting upon lead forms carbonate of lead, a white powder, which being conveyed in small quantities with the water to the stomach, acts as a slow poison, affecting first the digestive organs, producing dyspepsia, and finally terminating in nervous apoplexy, or paralysis.

The following remark is quoted from Dr. Wilkinson's work on the Bath waters, which contains also the subjoined case in confirmation.

“From the observations of Drs. Heberden, Baker, Warren, Darwin, and Lambe, it appears that paralytic affections have considerably increased; and this increase

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\* Vide Mr. Phillips' evidence before the committee of the House of Commons.

† One hundred cubic inches of the New River water, with which part of this metropolis is supplied, contains 2·25 of carbonic acid, and 1·25 of common air. It contains besides a minute portion of muriate of lime, carbonate of lime, and muriate of soda. The water of the river Thames contains rather a larger quantity of common air, and a smaller portion of carbonic acid.



has in many instances been attributed to the various modes by which lead is introduced into the system.

“There is a case related by Sir G. Baker, of Lord Ashburnam’s family, to which spring water was supplied from a considerable distance in leaden pipes ; and it was remarked that the servants were every year tormented with colic, and many of them died paralytic. The water was analysed by Dr. Higgins, who found a large proportion of fixed air and lead in solution. Lord Ashburnam substituted wooden for leaden pipes, and his family have had no particular complaint of the bowels since.”\*

If the water be received into casks, the result is not much better. Unless the casks are charred, the water decomposes the surface of the wood ; inflammable air is generated ; and this poison is held by the water in solution for a time, until part of it escapes in the form of gas, and the rest falls to the bottom as dirt.

It is an established fact, that the best material for

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\* When I commenced practice in town, upwards of twenty years ago, I used to be very much annoyed with headache ; and as no medicine appeared to relieve me, I consulted my friend Dr. Baillie, who asked what water I was in the habit of drinking. I told him it was the river-water : he inquired if it remained in a leaden cistern. I replied in the affirmative. This he said he had no doubt was the cause of my headache ; and advised me always to drink pump-water, which I have done ever since : a plan which I should advise every one that regards his health to adopt until fountains are erected.

forming vessels to contain water is iron. Iron tanks have for several years been used in ships, with the greatest advantage : and there is no reason why iron cisterns should not be substituted on land for lead cisterns and wooden casks.

Of whatever material the receptacles for water may be formed, they should be often emptied and carefully cleansed. The purest water must frequently contain clay and other earths ; these are deposited, and in time, if suffered to remain, become animalised ; hence, be the water supplied ever so pure, it must speedily be contaminated. For the same reason, it would be better that a fresh supply should be furnished every day, even though each supply were smaller than at present, rather than (as is generally the case now) only twice or thrice a week. It is to be added that filtering does not purify water, as it can only remove the impurities which are mechanically suspended in it, and not such as are in a state of solution. When water comes fresh into cisterns only two or three times a week, as is the case with the New River water, filtering cannot much improve it, nor be successful in depriving it of its deleterious properties ; we might as well attempt to remove the poison from a solution of arsenic by filtering. To prevent any injurious effects from its use internally, a chemical process would be necessary.

There is another mode by which an abundant supply of the purest water could be obtained, at least for drinking in any form, as for making tea, coffee, &c., which at the same time would greatly add to the beauty of the metropolis. I

mean, the erection of ornamental fountains, which, giving out constant streams of spring-water, would impart an appearance of coolness which is very refreshing in the sultry summer months, and would materially assist in keeping clear the sewers, into which the superfluous water would fall. Every person who has visited the Continent must have admired the pleasing effect produced by the fountains with which most cities there abound;\* and it is truly surprising that so obvious a source of beauty and ornament has been so long neglected in this country. Let us hope that in this respect we shall soon imitate our neighbours; who, on this point at least, have certainly set us an example well worthy of imitation.

It has been supposed that sufficient spring-water does not exist in the metropolis to supply the domestic wants of its inhabitants; but there appears to be no ground for

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\* The gardens of St. Cloud owe much of their enchanting beauty to the sheets of water, cascades, and jets-d'eau, which every where greet the eye; in one place a number of jets intersect one another; a single jet rises to the height of 97 feet. The cascades and jets-d'eau in the garden of Versailles are the noblest which France, or perhaps the world, contains. The bath of Latona is especially worthy of notice. A group consisting of Latona and her two children is in the centre, and seventy-four enormous frogs, representing the peasants of Libya, are covering them with torrents of water. The obelisk of water, formed by the union of innumerable jets; the water-walk, composed of a succession of cascades and jets; and the basin of Neptune, representing the triumph of that deity,—are also striking and beautiful objects.

this conjecture. At the Lambeth Baths 15,000 gallons of spring-water are thrown up every hour: this fact alone might suffice to shew the incorrectness of the notion. I believe the water drawn from the wells in the city is of the very best kind: that supplied by the old Aldgate pump is famed for its excellence.

The following extract from Prof. Brande's "Manual of Chemistry" will shew, however, that reform in the matter of pumps is imperatively required:—

"The spring-water of London is not unfrequently contaminated by various impurities of organic origin, sometimes in very sensible quantity; at others, only recognised on evaporating it, when the residue exhales a peculiar odour, and evolves ammonia if heated or acted on by caustic alkali. The source of this contamination, especially in the pump-water from church-yards, is sufficiently obvious; and such is the situation generally chosen for the parish pump. This disgusting source of water should be avoided, and the disgraceful system of burying bodies in the streets of London should be authoritatively discontinued."

Even where the water supplied by the pumps is excellent, and much used by the people of the neighbourhood, it is no uncommon thing to find some restriction upon their use, by their being chained up; or that the pump is out of repair and useless. Of the latter grievance the far-famed Clerkenwell pump is at present an instance: when I visited it a short time ago it was out of repair, and I was informed by persons living near it, that it had been

in that state for upwards of six months, of which circumstance great complaints are made, as the water of the spring is very excellent.\*

London is built on a soil which abounds in springs of the purest water. In the words of Mr. Farr, “pure water is abundant, and would flow under almost every street;” and yet it is justly considered quite a luxury to be able to get a draught of good spring-water, the number of pumps in London being very small in comparison with its extent. This is especially the case in the more modern parts of the town—in the city, pumps are comparatively numerous, while in the outskirts and suburbs they are “few and far

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\* This is one of the most celebrated of the London springs; and it may prove interesting to some of my readers to know that the following inscription is upon the pump, which should be the means of supplying the neighbourhood with its water:—

“A.D. 1800.

WILLIAM BOUND }  
JOSEPH BIRD } Churchwardens.

“For the better accommodation of the neighbourhood, this pump was removed to the spot where it now stands.

“The spring by which it is supplied is situated four feet eastward; and round it, as history informs us, the parish-clerks of London, in remote ages, annually performed sacred plays; which custom caused it to be denominated Clerks-well, and from which this parish derived its name.

“The water was greatly esteemed by the prior and brethren of the order of St. John of Jerusalem, and the Benedictine nuns in the neighbourhood.”



between." This is a state of things that should be remedied; and a beginning might be made by erecting a line of pumps from one extremity of London to the other, commencing at the western end of Piccadilly and Oxford Street, and thence to the east end of the town. At all events, it should be made incumbent on the projectors of all new streets and squares to erect pumps in them; and in proper situations fountains might also be provided; and, by boring to a sufficient depth, a spring might often be found which would cause the fountain to play day and night, without the aid of machinery—no uncommon thing on the Continent: what has recently been effected in this way at Paris and Vienna affords every encouragement for similar attempts here.\* All over Germany I observed that pumps and fountains are numerous in the towns. In Berlin alone there are upwards of 2000 public pumps.

The sewerage in many parts of London is very imperfect: the public health is seriously injured by this imperfection, which, however, has of late been somewhat remedied; and will, it is to be hoped, be wholly removed when the new act of parliament on this subject comes into operation.† It will enable the commissioners to compel

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\* I am glad to observe that in some parts of London—in Holborn, for instance—the suggestions made in the former editions of this work upon this subject have been partially adopted.

† In the fourth and fifth reports of the poor-law commissioners, it was stated, that out of 77,184 cases of claims to relief during the year ended 25th March 1838, 13,972 were cases of claims to

the owners of all houses to drain the sewers as often as the public health or advantage may require them so to do. Few persons would have imagined that there was no sewer either in Cheapside or Aldersgate Street; and yet such till lately was the fact: sewers were recently, for the first time, constructed in both these leading thoroughfares. In the Old Kent Road, in Bethnal Green, and in some parts of Westminster, these indispensable requisites of a healthy residence are almost entirely wanting. The importance of draining and sewerage is strikingly shewn in the report of Dr. Southwood Smith respecting the causes of febrile affections, (which have for a considerable period been prevalent in Bethnal Green and Whitechapel,) appended to a report of the poor-law commissioners:—"It appears," says this report, "that the streets, courts, alleys, and houses in which fever first breaks out, and in which it becomes most prevalent and fatal, are invariably those in the immediate neighbourhood of uncovered sewers, stagnant ditches and ponds, gutters always full of putrifying matter, nightmen's yards, and privies the soil of which lies openly exposed and is seldom or never removed." We are told that "a large portion of Bethnal Green is a swamp, hardly any part of which is drained;" and that "there is evidence derived from the history of these very localities, that the formation of a common-sewer, the filling-up of a ditch, the removal of stagnant water, and the drainage of houses,

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relief arising from fever in various forms prevalent in certain localities distinguished by want of drainage and other causes.

have rendered a district healthy, from which, before such measures were adopted, fever was never absent."

Another very useful improvement, and one easily effected, would be the addition of stench-traps to all the gratings in the streets leading into the sewers, such as are used in most private houses.

The inefficiency of the arrangements for cleansing the streets of the metropolis has lately attracted considerable attention; and there can be no doubt that this is a crying evil, the removal of which would greatly contribute to the salubrity and comfort of London, and would be the more easily accomplished through the abundance of water. Not only the more crowded streets, but also the back courts and narrow alleys, wherein the poorer classes reside, should be cleansed at least once every day. The present condition of the public streets is decidedly injurious to the health and comfort of all classes. In no department of civic police is improvement more imperatively required. A self-loading cart or street-sweeping machine has been lately invented by Mr. Whitworth of Manchester, which it is to be hoped will be speedily introduced into all populous towns. According to the description of it, given to me by its inventor, it is drawn by a single horse, and carries a series of brooms hung behind, which receive motion from the cart-wheels, and successively sweep the surface of the ground, carrying the soil up an inclined plane into the body of the cart. The operation of sweeping, loading, and carting away, are thus performed simultaneously; and one horse, besides drawing the cart, does the work of 20 men.

That an abundant supply of pure air is indispensable to the enjoyment of health, I have already shewn; and it is a truth universally admitted in words; but, like many other truths, this is woefully disregarded in practice. To how large a proportion of the inhabitants of London, for instance, is this necessary of life denied! Hemmed in closely on all sides by brick walls, they scarcely ever feel the breeze blowing freely on their cheeks; and the atmosphere is impregnated with, and vitiated by, a thousand different exhalations and fumes, which render it more capable of still further corrupting the blood than of conducting to its purification. It is nearly 200 years ago since a similar complaint was made by the well-known John Evelyn, at a time when the evil cannot have been at all comparable in magnitude to what it now is.

Speaking of the situation of London, he says: — “ We shall every way finde it to have been consulted with all imaginable advantages, not onely in relation to profit, but to health and pleasure; and that if there be any thing which seems to impeach the two last transcendencies, it will be found to be but something extrinsecal and accidental onely, which naturally does not concern the place at all, but which may very easily be reformed, without any the least inconvenience.”

And again, a little farther on: “ But I will infer, that if this goodly city justly challenges what is her due, and merits all that can be said to reinforce her praises and give her title, she is to be relieved from that which renders her less healthy, really offends her, and which darkens and

eclipses all her other attributes. And what is all this but that hellish and dismal cloud of *sea-coal*, which is not only perpetually imminent over her head, but so universally mixed with the otherwise wholesome and excellent air, that her inhabitants breathe nothing but an impure and thick mist, accompanied with a fuliginous and filthy vapour, which renders them obnoxious to a thousand inconveniences, corrupting the lungs, and disordering the entire habits of their bodies; so that catharrs, phthisicks, coughs, and consumptions, rage more in this one city than in the whole earth beside."

In confirmation of this last assertion, he afterwards asks, "Is there under heaven such coughing and snuffing to be heard as in London churches, and assemblies of people, where the barking and spitting is incessant and most importunate?"

He gives the following corroboration of his opinion as to the deleterious effects of the "sea-coal" smoke upon the air of the metropolis:—"Not to be forgotten is that which was by many observed, that in the year when Newcastle was besieged and blocked up in our late wars" (the civil war between Charles the First and the Parliament), "so as through the great dearth and scarcity of coales, those famous works (*i. e.* factories, &c. &c.), many of them were either left off, or spent but few coales in comparison to what they now use; divers gardens and orchards, planted even in the very heart of London (as, in particular, my Lord Marquesse of Hertford's, in the Strand, my Lord Bridgewater's, and some others about Barbican), were observed to bear such



plentiful and infinite quantities of fruits as they never produced the like either before or since, to their great astonishment; but it was by the owners rightly imputed to the penury of coales, and the little smoake which they took notice to infest them that year. For there is a virtue in the air to penetrate, alter, nourish, yea, and to multiply, plants and fruits, without which no vegetable could possibly thrive.”\*

As a remedy for these evils, he proposes a legislative measure for compelling the removal of all such establishments to some distance from town. It is much to be regretted that this proposal was neglected; for the evil has so grown upon us, that its remedy seems almost impossible, at least by the measure which he suggested. The advance of science, however, has put other and more simple means within our power for removing or abating the nuisance in question: all that is necessary, is an act compelling all factories, breweries, gas-works, *et hoc genus omne*, to consume the smoke which they generate, and not to pollute the vital element with their refuse.

This measure I conceive to be of the utmost importance, and essential to the success of any other plans for improving the public health. Parks, and other places of public resort and amusement, derive the chief part of their utility from furnishing opportunities and inducements for

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\* “Fumifugium; or, the Inconveniencie of the Aer and Smoak of London dissipated: together with some Remedies humbly proposed to his Sacred Majestie and to the Parliament now assembled. London, 1661.”

exercise in the open air ; but if that air be tainted and rendered unwholesome, this becomes an evil rather than a good.

The means to which I allude as enabling us to get rid of the nuisance in question, is the patent smokeless or argand furnace of Charles Wye Williams, Esq., which is an invention of considerable importance. Mr. Williams is the author of an elaborate treatise on the “ Combustion of Coal and Prevention of Smoke, chemically and practically considered ;” in which he gives an excellent exposition of the chemical theory of combustion, and ascertains the mechanical arrangements that are best calculated to burn with the greatest effect on the grate-bars the carbonaceous fuel and its gaseous products. To the improper and imperfect combustion of the latter are to be attributed those thick fuliginous particles which, in the form of smoke, contaminate our atmosphere. Mr. Williams’s agents, Messrs. Dircks and Co. of Manchester, have built a specimen furnace in that town for public inspection, and they have informed me that it has been visited by several of the nobility, as well as by the most intelligent engineers and manufacturers in that district. The novelty of this invention is, that the coals are burnt on the large scale of common engine-boiler furnaces without producing smoke ; so that, as has been stated, there is literally no smoke to burn ; and, indeed, Mr. Williams in his work ably and most scientifically combats the opinion that “ smoke ” can be *burnt*, that is, with heat-giving effect ; and on this he grounds the want of success that has attended “ smoke-burning ” inventions generally for the last 25 years. Mr.

Williams's may be called a system of prevention, and depends on a chemical knowledge of the due quantity of air requisite for combustion, and the best mode of regulating its admission. This plan is in use in many large establishments and public works, especially in Manchester and Liverpool, and has met with the approbation of several of the most distinguished chemists and civil engineers—among others, of Professor Brande, Dr. Ure, Dr. Kane, Dr. Brett, Mr. Parkes, &c. &c.

Many new facilities have of late years been given to persons residing in town, of enjoying exercise in the fresh air. Through the exertions of a few spirited individuals, the parks have been rendered far more accessible to the public than they previously were; above all, that most rural of suburban resorts, the Regent's Park, has been partly opened, and every day receives many visitors in search of health. It is to be hoped that the remaining unoccupied part of this fine healthy park will shortly be thrown open to the public without reserve, so that the foot-passenger may proceed from the right of the cottage in the inner circle completely across the park towards Macclesfield Gate—this walk would be truly delightful.\*

Great satisfaction has been given to the lovers of outdoor exercise by the occasional playing in Kensington Gardens of the band of the Horse-guards, stationed at Knightsbridge barracks; and it is to be regretted that this

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\* Since the publication of the last edition, the improvement here suggested has been effected.

amusement is so scantily furnished to the inhabitants of the metropolis. In most country towns the regimental bands play frequently; and surely London ought not to be worse off in this respect than the country. It would add much to the charms of the Regent's Park, and induce many more persons to take exercise in it than at present, were the band of the regiment stationed at the park barracks directed to play in it at stated times during fine weather. The band of the regiment stationed at the Wellington barracks might, in like manner, be directed to play in the enclosure of St. James's Park. If each of these three excellent bands were to play twice a week, from three till five in the afternoon, a most agreeable recreation would be furnished to the inhabitants of the metropolis.

The parks are not so useful to the public health as they might be, partly because there is no means of getting refreshment in them, except milk and curds and whey, which may be obtained at all the lodges. Were a casino allowed to be established in each of the parks, where visitors could be furnished with breakfast or tea in the open air in fine weather, the novelty of the thing would attract many, and thus induce some to leave their beds an hour or two before the usual time, and inhale the fresh morning air before it is impregnated with smoke.

This measure would not cost the government one farthing, as a large rent might easily be obtained for the casinos, the greater portion of which might be devoted to the improvement of the parks. As a proof of this, I may mention that the rent received for the refreshment-room

in the Zoological Gardens defrays more than one-half of the annual rent paid to Government for the whole of the grounds occupied by the society.

Although much has been done, there is still room for improvement. On the Continent greater attention is paid to procuring places of exercise and amusement for the inhabitants of towns than in this country. There are, however, indications that give us reason for hoping that our inferiority in this respect will not be suffered long to continue.

It would be very gratifying to the public were the gardens of Buckingham Palace thrown open at those times when the Queen is not residing there. Both at Paris and Vienna I observed that the grounds attached to the royal residences are at all times freely open to the people at large; and I feel assured that our amiable Queen would not, were the matter properly represented to her, refuse to grant this boon to the community, especially after the noble example given by William the Fourth, in admitting the public to his beautiful private garden at Windsor, which is directly under the windows of the castle.

A short time since, an honourable member in the House of Commons moved, that in all enclosure-bills provision be made for leaving open space sufficient for the purposes of the exercise and recreation of the neighbouring population. Sir R. Peel, in supporting the motion, observed that it was most desirable that the authorities of every large manufacturing town, indeed of any town having a numerous population, should have power to set apart an open space for public recreation and exercise; and he believed that there



could not be a more innocent or legitimate source of amusement—a source of amusement which would be more conducive to health, or tend more to wean the humbler classes from those habits of dissipation which they sometimes contracted from the want of such places. The honourable baronet concluded by saying that every one was pleased with the improvements that had been effected in the parks of London; and the same system should be extended to the large manufacturing towns. He should have no objection to a grant of public money, to the amount of 5,000*l.* or 10,000*l.*, for that purpose.

Several important accessions have been made to the means of recreation in the open air in the neighbourhood of London, since the last edition of this work. Of these, Victoria Park deserves especial mention, as a valuable boon to the inhabitants of a part of the metropolis where such a place was eminently needed. The arrangements for the laying out of this park appear to be excellent. It is also contemplated to convert Kennington Common into a park and pleasure-ground; and there is little doubt that in a few years no part of the metropolis will be without so indispensable an appendage.

In reference to this subject, I have much pleasure in quoting the following sensible remarks from a recent number of the *Medical Gazette*:—

“The advantages of parks and open spaces are by no means confined to their affording facilities for exercise and recreation; they have a more constant and wide-spreading influence upon the purification of the whole slowly-chang-

ing volumes of air. There are hundreds of places in this metropolis into which *wind* never finds admission, in which the air is never perceptibly moved, and in which the only change it undergoes is by the gradual mixing of its impure gases with those of adjacent spaces, and of the upper strata of the atmosphere. Nay, even among the wider streets, there are many through which a free current is very rarely blown; and Londoners, or at least the majority of them, shrink before a breeze that one from the provinces or the coast would hardly notice. It is probable, therefore, that by far the greater proportion of the change of the air which is effected in the metropolis is the result of the mixture of the gases composing it. But how slow a process this is, one may easily judge by the perceptible (we had almost said the palpable) difference between the air of an alley and that of the wide street or other space into which it opens. A part of the gases generated on the ground and near it are indeed, by the greater heat there, soon carried to some distance above it; but that which is thus disposed of is but a small part of what is rendered impure; nor are the heavy and most noxious of the gases thus most rapidly carried off. Indeed, it is probable that by this process the change of air is, as far as it concerns the health of those who breathe it, and who constantly render it more and more impure, almost unimportant. The only effectual natural process for its purification, in the absence of the wind, is the gradual mixture of the gases, in accordance with Dalton's law, that the interspaces of one are as vacua to the particles of another."

In the second edition of this work I suggested the formation of a Public Botanical Garden, with hot-houses, &c. like that at Brussels, for exotic plants, such as spice-trees, the bread-fruit tree, &c. and pointed out as a very suitable spot for this purpose the ground in the centre of the Regent's Park, then occupied by Mr. Jenkins, under Government,—one of the most delightful in the park; from the mount in which there are views hardly to be surpassed for beauty; indeed, one of them might be supposed to be a hundred miles from town.

Since the publication of that edition, an institution, denominated “The Royal Botanic Society of London,” has been formed; and already ranks among its members and supporters many noblemen and scientific gentlemen. The object of this society is the establishment, within the confines of London, of extensive botanic gardens, library, museum, studio, hot-houses, conservatories, &c. This plan comprises an Italian garden with raised terraces, fountains, and parterres, ornamented by balustrading, vases, figures, and works of art. The ground selected for the gardens is the spot above pointed out as well adapted for them, which contains eighteen acres. The plan of the society appears to be well calculated to promote the study of botany in this country; but I regret to notice that nothing is said in the prospectus concerning the admission of the public to the gardens. This I conceive is an indispensable requisite.

The gardens of the numerous squares in the metropolis are not nearly so useful as they might be, owing to the exclusive spirit in which they are managed. Why

should they not be opened at stated times to the public generally, in the same way as the Temple and Lincoln's Inn Gardens? Such a measure would be of great benefit. Gardens like those of Lincoln's Inn Fields or Russell Square might become pleasant places of resort to thousands of young people who scarcely ever see a green field. I am aware that, these gardens being private property, and intended for the use of the inhabitants of the squares, this plan could only be carried into effect with the permission and consent of the parties interested: but I should hope there would be no obstacle on their part. The number of persons frequenting these grounds is very small; those at present exclusively entitled to do so appearing to neglect them altogether. There need be no fear, I think, that this indulgence, if granted, would be abused, or lead to the damage of the gardens.

There has been much talk lately, both in and out of parliament, about providing places for the recreation of the people. Would Government object to pay a small sum for the purpose of keeping in order all the gardens that might be thus opened, and for making seats and other accommodations for the public? I should also like to see the Zoological Gardens, and all the Exhibitions, opened to the public gratuitously two or three times a year, on the anniversaries of great national events.

The salubrity of the metropolis would be increased if the practice of interring the dead within its boundaries were abandoned. For this reason, I rejoice to observe



that the number of cemeteries round London is rapidly augmenting ; and in a few years they will, I doubt not, entirely supersede vaults and churchyards,—a result highly desirable on many accounts. Of the *moral* benefits arising from the use of cemeteries, and the admission of the public into them, much might be said,—the advantages in regard to health must be obvious to all.\* It is highly desirable that interments in towns should be prohibited by act of parliament ; or, at all events, that no new burying-grounds should be set apart within their precincts, nor vaults constructed in any of the numerous new churches now in progress of erection. The Kensal Green, the North London, and the Norwood Cemeteries, are beautifully laid out—indeed, they are all admirable places.

In enumerating the improvements that have taken place in the metropolis as regards the health of the inhabitants, we must not omit the railroads. Some of my readers may be disposed to ask, in astonishment, what railroads have to do with health? I answer, that leaving out of view the obvious connexion between them in the facilities which railroads afford for enjoying the fresh air of the

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\* A dreadful account appeared in the public journals a short while ago, of the state of Aldgate churchyard, which it seems is so crowded with graves that not a single vacant spot is left, and hence graves are reopened before it is safe to do so : a few months ago a man, while engaged in this occupation, was deprived of life by the mephitic air arising from the grave. Many others of the London churchyards are in an equally shocking state.



country, they have in themselves a direct influence upon health of a most beneficial nature. The motion on a railroad has many advantages over that in the ordinary means of conveyance on common roads. It is not nearly so fatiguing, and the oscillatory movement exercises a very soothing influence upon the nervous system and circulation; thus rendering railroads highly serviceable to many classes of invalids, and enabling them to take healthful exercise, from which they must be debarred in any other shape.

So much for the *mode* of travelling; but the facilities which it will afford to pent-up citizens to migrate from their confined atmosphere, and dismal scenery of brick and mortar, into the fresh free air and beautiful expanse of the country, are still more important benefits conferred by railroads. Southampton and the Isle of Wight are as near at hand as Richmond was in days of yore; the balmy breezes and calm bays of Devonshire are distant but a few hours' trip. Who *then* would deny himself the pleasure of beholding with his own eyes the beauties of his country, or pine in disease for want of healthful recreation? To a benevolent mind, the pleasure derived from travelling by railroad must be much enhanced by the consideration that the rapid, agreeable motion is produced by the action, not of sentient bone and muscle, but by that of inorganic, insensible agents.

In order that railways may produce these beneficial results to as great an extent as possible, the fares should be much lower than is generally the case in England; and

it is certain that the proprietors would be as great gainers as the public by a considerable reduction in the prices of conveyance. Large sums might be realised by very trifling charges for short distances; this is strikingly evinced by the following fact: In the fares of the Manchester and Sheffield Railway there is the curious feature of a penny fare from Newton to Godley, about a mile and a half. About 20*l.* was received at this charge on the first day the railway was opened. The fare from Whitstable to Canterbury has been lately reduced, and, I have been informed, with the best results.

Admirable as railroads are in most respects, it is to be deeply regretted that so many accidents, as they are termed, have occurred upon them. Most of these appear to have resulted from gross carelessness or incapacity on the part of the conductors of the engines. A situation like this, on which so many lives depend, should be entrusted to none but men fully competent to the discharge of their duties, and of known sobriety and steadiness: it deserves to be considered, whether it would not be advisable that these engineers should be subjected to the same responsibilities as pilots of vessels; and in case of neglect be dismissed from their posts, and never afterwards employed. The Railroad Companies owe it to the public and to themselves, to pay more attention to this subject than they appear to have done hitherto. Such occurrences as the collision of the trains drawn by the engines Orion and Hercules, which happened some time since on the Liverpool and Manchester line, the effects of which

I witnessed,—the engines dashed in pieces, the trains overthrown, the banks broken down, the road stopped up for a considerable time, and great alarm spread for many miles,—such occurrences, I say, cannot fail to do much injury to railroad companies. On this occasion they were luggage-trains, containing merchandise only, and thus few or no lives were lost. Had they been first-class trains, the loss of life would in all probability have been awful. Since the above remarks were first published, more care appears to have been taken on railroads; in consequence of which accidents have been of much less frequent occurrence.

The fatal accident which happened on the 24th of last December on the Great Western Railway, occasioned by an early train running into a mass of earth which had fallen upon the rail from the embankment, is one which shews the necessity for incessant vigilance and superintendence in a very striking manner; and the great diminution in the tolls which immediately followed the accident proves, in the way most likely to be conclusive, that it is for the *interest* of railway proprietors to adopt every possible precaution to prevent such catastrophes.

The innumerable steam-boats plying on the river are another comparatively recent means of securing health to the metropolitans. The benefit derived from a trip for thirty miles down the river on a fine summer's day, is very great. The lively bustle of the river, the beautiful scenery on its banks, and the swift motion of the vessel through the water, all tend powerfully to alienate, for a time,

the mind of the business-pressed citizen from his daily thoughts ; and the refreshing breeze which is almost always on the river has a most healthful effect. By these conveyances a person may visit the sea and return to his home the same evening.

By bringing men of different countries more into contact with one another, and by promoting the more complete interchange of opinion and community of feeling between the inhabitants of the same country, steam-conveyances contribute to the health by giving rise to kind mutual feelings consequent on better acquaintance with mankind, and on the dispersion of prejudices. How such a state of mind operates upon the animal economy must be sufficiently obvious to the readers of this book.

The medicinal properties of various kinds of water have been matters of observation from the earliest periods of which we have any record, and at different times there has existed a disposition to regard that liquid as a universal remedy—a notion which has some advocates on the Continent at the present time. The progress of science has disproved the existence of any such thing as a universal medicine ; and, as is too often the case, exaggeration on the one hand has given rise to undue depreciation on the other, so that there is a general disposition to undervalue the efficacy not only of pure water, but of mineral waters also, as curative agents. Yet, *à priori*, it would seem highly probable that a fluid which enters so largely into the composition of the human body, and is in fact one of the

necessaries of life, should be capable of exerting a beneficial influence upon the system, when applied with skill and judgment; and it would be most unjustifiable scepticism to reject all the numerous cases, well authenticated by competent and disinterested persons, which are recorded in confirmation of this conjecture. It seems to be in accordance with the harmonious simplicity and benevolent design which pervades creation, that man, in every region of the globe, should have within his reach the means of curing those deviations from a state of health which are consequent upon his circumstances, and not attributable to wilful departure from the laws of nature; and nothing could be better adapted to fulfil this purpose than the universally diffused liquid which is almost instinctively selected as the natural drink of every species of animal. Be this as it may, I consider it well established that water in its pure state is frequently a most valuable remedial agent, and that many kinds of mineral waters are medicines of a very powerful description, and better adapted than any artificial preparations for the cure of various diseases. Some of the mineral waters owe their peculiar properties and effects to circumstances beyond the reach of our observation, and it is consequently out of our power to imitate them with complete success, and therefore it may reasonably be inferred that they must still be in some cases preferable to every other medicines. Feeling the importance of this subject, I shall enter at large into it, and endeavour to give a comprehensive account of the principal British and foreign spas, which will serve to guide those whose health



may stand in need of such restoratives to those best fitted to prove of service to them.

The opinions held by our predecessors in medicine with respect to the operation of certain universal agents on the human frame, both in a state of health and of disease, are not unfrequently worthy of careful investigation, as, when divested of the crudities with which they are certain to be environed, they generally contain sufficient evidence of thought and good reasoning, founded on fact and careful observation, and may serve as guides to future researches. Indeed, in more than one instance it would appear that, setting aside the vast strides made by the sister art of chemistry, which have almost constituted it a new science, the operations of which must be felt in every subdivision of the kindred branches of medicine, the labours of those who have succeeded the pioneers of the past century have effected little more than clearing away the superincumbent strata of earth and rubbish by which the valuable contents of the mine were concealed from view. These latter have played the parts, therefore, of skilful miners, who have sought for and recognised the diamond in the rough, and have brought to light the valuable results of the labours of those who have gone before us.

If we look back to the medical publications which appeared about a century since, on one of the most interesting of all subjects,—the use and abuse of water, its beneficial effects in removing some diseases, and its injurious consequences, when freely administered, in others and in different states of the system,—we shall find that there

were several works then produced, embodying a large amount of information, somewhat quaintly expressed, but to be readily separated, by the careful inquirer, from the dross with which, as in all controversies, it is encumbered. Of these, the best perhaps is that of Dr. Short, published in 1725, entitled “A Rational Discourse of the inward Uses of Water, shewing its nature, choice, and agreeableness to the blood; its operation on the solids and fluids; in what constitutions and times proper; how it promotes necessary, and abateth hurtful *evacuations*; in what diseases restorative, and wherein prejudicial.” In the course of this work we are frequently presented with remarks of much value, accompanied, however, with the occasional drawback of crudities resulting from the general state of knowledge in those times. He tells us, when speaking of the choice of good water, that “all water is not equally wholesome and agreeable to our bodies; for, as it runs in different channels, it must be impregnated with the particles of those earthy minerals or fossils which it washes, and which often make it more unfit for use.\* Hippocrates says (Aphor. v. 26), that that *water is lightest and best which is soon hot and soon cools*. Galen (*de san. tuend. cap. i.*) prefers that which is of a pleasant taste, free from every quality, without smell, clear, fine, and transparent. Marinestus

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\* “A better example of the truth of this observation can hardly be given than the *Derbyshire wry-neck*,—a most annoying and displeasing malady, which can generally be traced to the constant drinking of hard water.”

chooses those which spring from high places and gravelly hills; for such, he says, are sweet, white, *i. e.* transparent, but above all, those which rise towards the East: but he thinks, if they are not from such earth, they may be much mended by boiling, for thereby the grosser parts are separated from the more subtle. That water we generally repute best for drinking or dressing victuals, which is *clear, light, insipid*; the lighter it is, so much less *salts* or *mineral particles* are in it, therefore *rain-water*, having fewest of these, should be most wholesome; but, being full of *volatile particles*, it presently stinks and becomes nauseous; therefore that is to be preferred which comes through *chalk* or *limestone, light gravel* or *fine sand*. *River-water* is next; but is liable to the same inconveniences of repletion with *earthy, vegetable* or *mineral salts*, which it washes in its course: *pond-water* worst of all, being only *rain-water* stuffed with hurtful parts, taken from that earth where it stands without motion, and is very apt to putrefy."

I proceed to present, in a condensed form, some of the more striking opinions of Dr. Short on this subject.

Water comes to us with the best and highest authority for its value: for its almighty Author, whose wisdom is infinite, including all liquors intended for the preservation and comfort of life under the generic name of water, has promised—*thy bread shall be given, thy water shall be sure*. Additional proof of its importance may be drawn from the fact, that it is the sole liquid in use for the animal and vegetable kingdoms, which flourish and are strong and healthy when duly supplied with pure water. The great

plenty of this liquid on the terraqueous globe would evidently imply, that it was always intended for our ordinary drink ; and it seems more rational to believe that corn was provided for bread, and the juice of the grape for medicinal purposes, than to furnish liquors to please the taste and satisfy the luxury of men. The moderate use of these certainly much promotes the comfort of human life ; nevertheless, their constant employment is exceedingly hurtful, destroying the happiness of existence, injuring the health, and visibly shortening life itself.

Water acts upon the fluids of the body by diluting and mixing their parts, preventing obstructions, acting as a sheath and diluent to their acrid particles, dissolving the salts and causing their discharge, and by fusing a thick, viscid, and sisy blood, without injuring its healthy texture, or rendering it morbidly thin. A draught of cold water, taken two or three times a day, would draw up and corrugate the fibres, impart tone to the system, give a check to the excessive exhalation of fluids, and at the same time stop no natural and necessary evacuation. When water is advised as a relaxer of the fibres and solids, it must be drunk warm ; but when it is used as an astringent, as in fluxes, hæmorrhages, &c., it should be taken cold, that it may act the more readily in corrugating the fibres. Dr. Short has cured females labouring under excessive flux, and who have been under treatment for months unavailingly, by totally abstaining from the exhibition of medicine, and having recourse solely to draughts of cold water. In like manner, in agues, whether quotidian, tertian, quartan, or

erratic, he has known the plentiful drinking of cold water, accompanied with exercise, work a cure in a few days.

Water is more fitted, as a common drink, for persons of a sanguine temperament, or those of the choleric or melancholic constitution ; but the strumous, phlegmatic, and weakly require something more stimulating and strengthening. These latter may safely have recourse to a little wine diluted with three times the quantity of water, taken in moderation. Moist and cold drinks are injurious, relaxing too much the already weak solids.

Water taken internally increases all the secretions of the body, and thus removes those diseases which depend on obstructions or want of action. It acts equally as a diluent, diuretic, and aperient ; and, taken warm, as a sudorific and emetic. It also is of great service in relieving spasm. From all this it may be gathered, that the practice of water-drinking is not only advantageous in health, but of exceeding service in the treatment of disease. In indigestion, or want of appetite, water is the best liquor to drink ; for, consisting of smaller parts than any other liquid, it can, with more ease and readiness, penetrate the food, thrust itself into its interstices, break its cohesions, and separate its parts, thus facilitating the work of the stomach. It is also the best fluid to maintain a good appetite, for the great quantity of air it contains is of special use in digestion. Warm water is also advisable in gout of the extremities and rheumatism, when it acts as a diluent and sudorific. Fevers, inflammations, &c. are, in like manner, relieved by drinking water.



Dr. Short also recommends water in many other diseases ; of these I shall only mention low spirits, hypochondriasis, hysteria, sciatica, asthma, consumption, jaundice, large and difficult expectoration. Those who are desirous of long life, says he, let them drink water in manhood and dilute soft wine with it in old age. He that would have a clear intellect, quick wit, and ready apprehension, let most of his ordinary drink be water, and let him use moderate exercise, whereby the equality and regularity of the circulation is preserved, and cloudiness of the understanding prevented.

Instances, however, may occur where water is injurious. A state of constitution has been already indicated in which water alone would prove hurtful, and there are cases in which when otherwise it might be of service, yet, from long fasting, or when exhausted by too great evacuations, it would certainly do harm, unless a little wine be added to impart strength and stimulus. In diseases of exhaustion, such as anasarca and those dropsies which are caused by great and long-continued evacuations, in malignant and nervous fevers, the same rule holds good ; and in gout, when it affects the stomach, water must be carefully refrained from, and generous wine used instead.

For the relief of a large majority of diseases, where common water is likely to be injurious, nature has provided us with medicinal waters. They are of different kinds and temperatures, the waters holding various salts in solution and combination, as prepared in the alembic of nature,

and are fitted respectively for medical administration accordingly.

From this abstract of Dr. Short's work, it will appear that the writer of a recent book, entitled "Hydropathy," was forestalled more than 100 years ago. The book just mentioned contains nothing of importance that has not been previously known ;\* and in Dr. Short's work alone most of the subjects treated of in "Hydropathy" will be found to be discussed ; and the older book has this advantage over the new one, that it was written by a skilful physician, while the latter is the production of a non-medical person. Hence, as might be expected, we find in Dr. Short's book some discrimination ; he expressly states that there are cases in which water is injurious, while the author of "Hydropathy" is a firm believer in the universal efficacy of water, admitting no exceptions whatever. I have no wish to deny that many cures may have been effected by Priessnitz, to whom the author yields a species of worship ; but I have no doubt that the cures were attributable quite as much to the severe regimen imposed by Priessnitz, and to the air and exercise, as to the application of water. The mode of treatment pursued, I consider well worthy of imitation in the case of those luxurious, over-fed idlers who constitute the mass of visitors

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\* I may refer to the works of Drs. Butts and Saunders, in confirmation of this statement : the former, in particular, contains very copious information on the qualities and uses of every variety of water.

to Gräefenberg, as to most watering-places; being convinced that it would, in most instances, do them a world of good, and is, in fact, essentially the same as that which I have recommended in former editions of this work. But there is no need to travel to an obscure out-of-the-way German village in order to undergo the regimen in question. Let any one of the class of persons alluded to betake himself to one of *our* numerous hydropathic institutions, to wit, the union workhouses, and submit to all its regulations, and I will gladly guarantee a cure in a very short time. This is the method pursued by the dog doctors also when some petted animal is consigned to their care for want of appetite, &c. ; they simply half starve the creature, which soon recovers from the effects of constant repletion and inactivity; and when it returns to its too indulgent master or mistress, is but too happy to devour what it would formerly have turned away from with disdain and disgust, much to the delight of its unconscious owner, and to the credit of the sagacious doctor.

The importance attached to the subject of mineral waters in ancient times is attested by the following list of authors who have written upon it:—Aëtius, Aretæus, Antonius Musa, Angelus Sala, Athenæus, Brasavolus, Bolducius, Cardenus, Coelius Aurelianus, Celsus, Dioscorides, Fab. ab Aquapendente, Forestus, Galenus, Gesnerus, Halesius, Hildanus, Hippocrates, Marcilinus, Marrobius, Marcellus, Oribasius, Paræus, Paulus Ægineta, Plinius, Plutarchus, Prosper Alpinus, Riverius, Senertus, Suetonius, Samonicus, Scribonius.

It is not to be denied that a portion of the beneficial effects found to follow the use of mineral waters may, in most cases, be attributed to other concomitants: to the change of scene, the excitement, the release from the cares of business, which a visit to a watering-place generally involve; and in selecting the water to be visited, this is a point to be taken into consideration. Accordingly, as a general rule, springs in the neighbourhood of a person's usual abode are not so beneficial as those more remote, although chemically they may be of quite equal excellence.

I shall first give an account of the metropolitan springs and baths, the former of which have fallen into undeserved neglect; and I shall, I think, be able to prove that they are calculated to be extensively useful to those inhabitants of London whose circumstances preclude their going to spas farther from town, having certainly lost none of those qualities which in former times recommended them so extensively. The spas in other parts of England will next occupy our attention; and lastly those of the Continent will be treated of.

BAGNIGGE WELLS.—These springs, which are among the best of the metropolitan mineral waters, have fallen into more complete disuse than perhaps any other in or near London. The chalybeate spring is closed; and when I visited it in February last, I had considerable difficulty in procuring any of the water. With the assistance of my servant and a lantern, I did at last succeed in obtaining it from a cellar in which the spring is situated, and have

since subjected it to a variety of tests. There is some talk of building over the spring, and thus effectually depriving the public of it; but I trust this will not be carried into execution, and hope that the following account of the wells will aid in preserving the spring, and in rendering its beneficial qualities more widely known than they at present are. The aperient spring has been wholly lost sight of; and the people of the neighbourhood are totally unacquainted with its locality, although it is probably near to the chalybeate, as a single pump, with a double piston, was formerly employed to deliver the water of both springs.

In a work published by Dr. Bevis, in 1760, and dedicated to the Earl of Macclesfield, the President of the Royal Society of London, entitled “An Experimental Inquiry concerning the contents, qualities, and medicinal Virtues of the Two Mineral Waters lately discovered at Bagnigge Wells, near London, with Directions for Drinking them, and some Account of their Success in Obstinate Cases;” I find the following statements, which are curious, as shewing the celebrity of these waters at this time, and the disposition to exaggerate their good qualities:—

“At what period these waters were first known to be possessed of salutary qualities, cannot be made out with any degree of evidence. A tradition goes, that the place of old was called Blessed Mary’s Well; but that the name of the Holy Virgin having in some measure fallen into disesteem after the Reformation, the title was altered to Black Mary’s Well, and then to Black Mary’s Hole; though there is a



very different account of these later appellations: for there are those who insist they were taken from one Mary Woolaston, whose occupation was attending at a well, now covered in, on an opposite eminence, by the foot-way from Bagnigge to Islington, to supply the soldiery, encamped in the adjacent fields, with water. But waving such uncertainties, it may be relied on for truth, that the present proprietor, upon taking possession of the estate, found two wells thereon, both steamed in a workmanlike manner; but when, or for what purpose, they were sunk, he is entirely ignorant. The waters of these wells, one of which purges, the other is a chalybeate, are the subjects of the present inquiry; and the use of the former being frequently directed as preparatory to that of the latter, I shall begin with it.

“In the year 1757, upon boiling some of this water in a tea-kettle, it was observed to turn whitish and foul, which caused it to be rejected for culinary uses. The same year a man who attended the working of some snuff-mills, then erected close to the well, happening to be feverish and thirsty, drank plentifully of the water, and found himself immoderately purged by it; which gave the first intimation of its cathartic quality. The water fresh from the pump is remarkably clear and limpid, and discharges more air-bubbles at the surface than most waters do at the spring-head, though far short of the Bagnigge chalybeate water in this respect. It tastes not disagreeably in the mouth; but being swallowed, leaves a distinguishable brackish bitterness on the palate. There is nothing re-

markable in it as to smell, when cold. From many trials, I found the thermometer always several degrees lower in the purging-water than in the chalybeate.

“A bottle of this water, which, among several others corked and waxed, the proprietor had shipped for Virginia in October 1758, came back and was brought to me in October 1759. It was then quite limpid, and without a particle of sediment, nor was the taste sensibly impaired. Three half-pints of it had much the same purgative effect as if fresh from the well.”

After detailing a number of experiments on the chalybeate spring, Dr. Bevis sums up in these terms: ‘I think I may conclude from this series of experiments, that the component parts of the Bagnigge chalybeate are —

- |   |                                     |
|---|-------------------------------------|
| 1. A pure elemental water.                  | 5. An ochreous earth.               |
| 2. An elastic air.                          | 6. A highly attenuated iron.        |
| 3. A calcareous absorbent lime-stony earth. | 7. A muriatic salt.                 |
| 4. A small portion of selenite.             | 8. A little bitter neutral salt.    |
|   | 9. And probably an active sulphur.’ |

“*Of the Medicinal Virtues of the Chalybeate Water, with Directions for using it.*—Although experience abundantly proves that the operation of chalybeate waters in general, as evacuants, is by urine, yet it is as constantly observed, that they are apt to prove a little purgative at first drinking of them, especially if they happen to have any thing of a bitter salt in them, as this of Bagnigge very evidently has, whence three or four glasses of it are apt to take downward at the first setting out; but this effect seldom lasts longer

than whilst it is clearing away the vitiated contents of the *primæ viæ*.

“It dilutes and dissolves vicious humours, obtunds and corrects acrimonious and bilious ones, and temperates acidities and inordinate fermentations, restrains effervescences of the blood, and recreates the spirits beyond any other medicines. It greatly increases the momentum of the blood without heating it, and thereby proves an excellent deobstruent in glandular obstructions; conquers scrofulous disorders in young people, by mending the weak tone in the solids, and acting as an aperient, resolvent, and a detergent; as a sharpener of the appetite and a strengthener of digestion. It is so mild as seldom to disagree with the most delicate constitutions, such as can by no means endure any of the officinal preparations of steel; hence it is excellent in all hypochondriac and hysteric complaints, and nervous diseases, and those peculiar to females generally, attenuating the circulating fluids and invigorating the solids. In disorders of the breast, habitual coughs and asthmas, it is of surprising efficacy, provided there be no spitting of blood, fierce hectic heat, or ulceration of the lungs; but in the first stages of consumptions arising from a strumous habit, as they oftener perhaps do than from any other cause in northern climes, a cure may be very reasonably expected from a timely use of this water.

“By its corroborating and bracing qualities it prove very strengthening and beneficial to the intestines and lacteals, spleen, and liver; its efficacy in stopping begin-

ning dropsies and restoring the tone of the lymphatics, may be depended upon, as also for restraining inordinate fluxes. Dr. Jurin, in his letter to Dr. Hales, greatly commends the use of chalybeates, lightly acidulated, in the diabetes; for which disorder Dr. Slare prefers them to the Bristol water. Our chalybeate has done remarkable service in ulcers of the kidneys, and in bringing away gravel when obstinately fixed, and stones of the bladder. After continual fevers, and to prevent the return of agues, nothing may be more safely relied upon, if assisted with stomachic bitters.

“ From what has been said, this chalybeate cannot fail (if taken under the direction of an intelligent physician, which may be absolutely necessary in many circumstances,) of removing cachexies, jaundices, atrophies, excessive fluxes of the hæmorrhoidal veins, and in general all disorders arising from viscosity or acrimony of the juices, whether in the *primæ viæ* or elsewhere, obstructions, inordinate effervescence of the blood, relaxations, want of natural heat, nervous debilities, and sizy and acrimonious humours, particularly irregular gouts and scorbutic rheumatisms.

• “ To conclude (in the words of Mr. Reynolds), ‘ We cannot but reflect with adoration on the goodness of that Providence, whose mercy is over all his works; who, in compassion to our bodily infirmities, has bountifully supplied us with those salutary fountains in the neighbourhood of this great metropolis.’

“ Although the probable effects of mineral waters in

particular disorders may be rationally inferred, when their constituent principles are once well understood, yet, as real facts are ever most convincing and satisfactory, I thought it not amiss to annex a few cases wherein these springs have proved of signal benefit. They are all taken from accounts given either by the persons themselves or their intimate friends, excepting one or two, which I relate upon my own knowledge."

Here follow numerous cases, from which I select three ; and these would seem to prove that the Bagnigge Wells waters were as efficacious as those now sought after in Germany :—

" Mr. Peregrine Phillips, an officer in the royal navy, being a long while stationed in America in the late war, contracted a most violent scorbutic disorder, so obstinate as not to give way to any medicines that were prescribed to him by his physicians for years together : he was frequently covered over with cuticular eruptions, mostly dry, though sometimes with moist sores, by which he found himself more relieved than by all the remedies he had used ; for when his skin was clearest, and his sores dried up, he was tormented with such inward heats, pains of the stomach, and insuperable costiveness, that he wished himself dead. As he imagined that his complaints arose from a cold cause, he was reluctant to try what waters would do for him, though advised to it by some of his friends. At length, hearing what the Bagnigge waters had done in cutaneous foulnesses, he determined to go into a course of drinking them, and accordingly began with the



chalybeate; but finding, after a few days' use, that this water rather increased his costiveness, though it mended his appetite, he took to the purging-water for some days, and afterwards drank them both mixed. When he began, his most alarming symptom was broad livid spots on his legs and thighs, which were also thick, and of a callous hardness; so that a surgeon he consulted apprehended a mortification would ensue. However, in a week or ten days, he found them softened, and soon after they became scurvy, and peeled off; his appetite returned as his costiveness abated; his former pains and heats vanished; and his constitution, by the end of the summer-season of 1758, seemed quite renewed. However, at the beginning of 1759, he found there were some relics still to be eradicated, and had recourse to the wells again early in the spring; and soon found himself set to rights again, and has continued well ever since. Nevertheless, he is determined to drink the water once a year, as long as his residence in London will allow him, for the sake of the fresh spirits and keen appetite they never fail to create.

“A lady, at about the age of fifty, begun to be troubled with a difficulty of breathing, had several times been at Tunbridge, and always found benefit. She, having heard of Bagnigge Wells, consulted her physician whether a course of those waters might be entered upon with any hopes of success? He was not against her trying them; and, as she lived not a great way from the Wells, she was determined to do it. This was the spring of 1759, at which time it was with great difficulty that she could get in or

out of her chariot, and was unable to walk up one pair of stairs without resting some minutes at the first landing-place before she could proceed further; her appetite was wholly gone, she was much emaciated, begun to be dropsical, and her skin was tinged yellow all over. In this condition she visited the Wells, and began with a single small glass of the chalybeate; the next day she took two, afterwards three, adding a tea-spoonful of the tincture of cardamoms to the first glass for some time. She continued the course for nine-and-forty mornings, without interruption; at the end of which she found herself relieved, and free from her complaints. This relation I had from her husband; the lady herself, at the time I called, having walked abroad upon a visit, though in very cold weather. He told me, himself and all their acquaintance could not but look upon this as an extraordinary cure; and, to confirm the above account, desired I would call again, which I did, and had the same relation from the lady herself.

“ Mr. Davis, master of the academy at Islington, was many years troubled with weak and inflamed eyes, and a hard and thick swelling of his upper lip, which was sometimes so enlarged as to lie almost even with his nose, being covered with sore eruptions. He drank the purging-waters at the proper season in 1757, and found that they never failed to work in the mildest manner, though sufficiently, and without the least griping or offence to his stomach. He perceived his lip to contract in size in a very short time; and the disorder in his eyes, which plainly

appears to have been a scrofulous ophthalmia, sensibly to abate : so that, by the end of the season, he had no remains of his disorder, but thought it best to renew his course the next season, to confirm his cure. He has so good an opinion of this purging-water, that he takes the young gentlemen under his tuition to drink it twice a year at the proper seasons."

ISLINGTON SPA.—I visited this spring a few days after the preceding, but found it closed ; and I was unable to procure any of the water, the drains having broken into it, so that it had not been used since last summer. I have just learnt, however, that preparations are making for speedily reopening it to the public. The following account of the Spa was given to me by the present proprietor, and seems to be borne out by "The History of Clerkenwell," in most respects.

"Islington Spa was more than a century back resorted to by our nobility and gentry for its medicinal virtues ; and it obtained the name of the New Tunbridge Wells, from its similarity to the waters of Tunbridge Wells in Kent. The water of this spring is beautifully clear, and although in taste it is slightly brackish, it cannot, after a few draughts, give offence to the most fastidious palate ; indeed, during the summer months, its extreme coolness and transparency are highly grateful. The strata through which it rises are no doubt strongly impregnated with iron ; but, besides this, in its progress to the surface, it dissolves some saline substance ; for while its chalybeate properties restore the tone of the exhausted constitu-

tion, its aperient qualities remove from the system those crude humours which so frequently lead to an untimely grave.

“The exact period when the Islington Spa was discovered cannot now be ascertained ; but it is certain that as early as the year 1640, its excellence was duly appreciated : since that time, and for more than a century afterwards, crowds of invalids resorted to the spring. So great, indeed, was the celebrity of this spa, that the whole world of fashion, including two Princesses of the House of Brunswick, were attracted in search of health to the restorative fountain ; and their concurring testimony proved that they did not drink in vain. The truly illustrious chemist Boyle was induced to pay particular attention to this spring ; and he seems to have considered it superior to any medicinal water then known. Many of the sages too, and by far the most talented physicians of his day, entertained a favourable opinion of its powers.

“This spring has been analysed by several eminent chemists ; and they find in it that peculiar modification of sulphate of iron, and an aperient of salt in combination, which, though it may be partially imitated by artificial means, cannot be equalled. Physicians, too, of acknowledged talent, have visited the Spa, and after drinking the waters, have given a very high opinion of their medical qualities.”

From Cromwell’s “History of Clerkenwell” I take the following passages relative to this Spa :—

“The two following lines were curiously cut in the

bark of one of the trees in the walks, but are now defaced:—

“ ‘ Obstructum reserat ; durum terit ; humidum siccatur ;  
Debile fortificatur,—si tamen arte bibas.’ ”

“ Here follows a doggrel paraphrase, by a gentleman who was restored to health by this water, after an extreme ill state of constitution for more than thirty years, and drinking almost all the other mineral waters in the kingdom without effect. And the same gentleman left the following lines in his apartment, after his cure:—

“ ‘ For three times ten years I travell’d the globe,  
Consulted whole tribes of the physical robe ;  
Drank the waters of Tunbridge, Bath, Harrowgate, Dulwich,  
Spa, Epsom (and all by advice of the College) ;  
But in vain—till to Islington waters I came,  
To try if my cure would add to their fame.  
In less than six weeks they produced a belief,  
This would be the place of my long-sought relief ;  
Before six weeks more had finished their course,  
Full of spirits and strength I mounted my horse ;  
Gave praise to my God, and rode cheerfully home,  
Overjoyed with the thoughts of sweet hours to come.  
May thou, great Jehovah ! give equal success  
To all who resort to this place for redress.’ ”

SADLER’S WELLS.—A well was formerly in repute here ; but it is now covered over, and its exact position cannot be ascertained. In a pamphlet published in 1684 it is stated, that even before the Reformation “ it was accounted sacred, and called Holy-well. The priests belong-



ing to the priory of Clarken-well using to attend there, made the people believe that the virtue of the water proceeded from the efficacy of their prayers: these superstitions were the occasion of its being arched over and concealed at the time of the Reformation. And in this state it grew out of remembrance, and was wholly lost." Many years after this, the ground on which the spring was, being occupied by one Sadler, his servants, while digging for gravel in the year 1683, re-discovered the spring, which in a short time came into such repute for its medicinal qualities, as to be visited, it is said, by 500 or 600 people every morning.

THE BEULAH SALINE SPRING AT NORWOOD.—The village of Norwood is seven miles from London, and is situated on one of the Norwood hills, about 400 feet above the level of the sea. Hence its air is pure, and has long been celebrated for its invigorating qualities. The views in the neighbourhood are charming, and the grounds in which the Spa is situated tastefully laid out. There are many similar springs near it, as at Streatham and Epsom.

This spring was first brought into notice by my friend Dr. Weatherhead, from whom I have received the following information respecting it. Like most other natural medicinal fountains, the Beulah had been known from time immemorial to the peasantry of the neighbourhood, and resorted to as a means of cure on grounds the most rational; namely, that it had proved beneficial in cases which were known to them.

From the analysis furnished by the doctor, it appears unquestionable, that no mineral aperient spring in England can compare with it in the strength of its saline impregnation; for in this respect it far exceeds the waters of famed Cheltenham. The following are the contents of a quart of the two several waters:—

BEULAH.		CHELTENHAM.	
	Grains.		Grains.
Sulphate of magnesia . . .	123	Sulphate of magnesia . . .	22
Sulphate of soda and mag- nesia . . . }	32	Sulphate of soda . . .	30
Muriate of soda . . .	19	Muriate of soda . . .	100
Muriate of magnesia . . .	18½	Sulphate of lime . . .	9
Carbonate of lime . . .	15		161
Carbonate of soda . . .	3		
	210½		

The above analysis has been confirmed both by Professor Faraday and Mr. Hume. With such ingredients in the Beulah spring, no one can question or reasonably doubt the efficacy of these waters; but the close proximity to London operates to their prejudice,—for things far-fetched are most valued, and we are prone to despise too much what is readily within our reach; and hence it is that the Beulah Saline Spa is not prized as it deserves.

The Spa is useful in cases of indigestion, liver and bilious complaints, jaundice, hypochondriasis, in some unhealthy conditions of the circulating fluids, and in scrofula.

The best time for taking the waters is early in the morning; and the usual quantity for a dose is a pint, but sometimes a single wine-glassful is sufficient. The water is best when taken at the well, as it abounds in fixed air, which escapes rapidly. It may be mentioned,

that the water is raised by means of a glass bucket,—a mode far preferable to the use of pumps and leaden pipes, which greatly injure all mineral waters. At the German Spas pumps are not employed.\*

THE SPA IN SPA-FIELDS.—This spa, which is known by various names, is in a garden adjoining a baker's shop in Spring street, Spa-fields. I have made several visits to it, and have endeavoured to learn something of its history, but have been quite unsuccessful. It is much resorted to by the poorer classes, who are supplied with its waters (by means of an old pickle-jar let down by a rope) at a low rate. The spa was some years ago open to the public; but it has latterly become private property, and is kept under lock and key. I have been told that it was formerly in high repute as a tonic, and for nervous complaints. The following is an analysis of the water, made by Mr. Chapman at the request of Dr. Davis, with which I have been favoured by the present proprietor, Mrs. Laverick. In 100 grains of this water there is—

Sulphuric acid . . .	·784	of a grain.
Hydrochloric acid . .	·00604	„
Carbonic acid . . .	·44	„
Lime . . . . .	·371	„
Magnesia . . . . .	·376	„
Iron . . . . .	no trace	
Total . . . . .	1·97704	

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\* For a full account of this Spa, and directions for its use, I have much pleasure in referring to Dr. Weatherhead's work on that subject.

HAMPSTEAD SPA.—The village of Hampstead is situated on one of those eminences which protect London on the north, and form the boundary of the valley of the Thames, above which it rises to so great a height as to be perfectly free from those dense fogs which so frequently annoy and distress the inhabitants of the metropolis. In fact, the purity and salubrity of its air are famous; but it must be admitted that the temperature is rather severe, and not well adapted for persons of weak lungs. From various spots in and around the village very extensive prospects may be had, reaching on the east beyond Gravesend, and on the west to Windsor. On a clear day, it is said that from the heath one may see into no fewer than ten counties. The soil in the neighbourhood is chiefly sand and gravel, and is consequently very dry. There are several springs; but that, the name of which is given above, is the most celebrated.

In the early part of the eighteenth century the Hampstead waters were first brought into notice. The well in Well Walk seems to have been held in great repute; its waters being sent to town at that time to different agents for public sale, and advertised; it was also strongly recommended by physicians of eminence as equal to any chalybeate waters in England. The wells, at that time of day, used to be as much frequented, and by as good company, as now visit Tunbridge Wells. It appears by the following analysis, with which I have been favoured by Mr. Smith, chemist at Hampstead, that the solid contents of a wine-gallon of this water are:—

	Grains.
Oxide of iron . . . . .	$1\frac{50}{100}$
Muriate of magnesia . . . . .	$1\frac{75}{100}$
Sulphate of lime . . . . .	$2\frac{12}{100}$
Muriate of soda . . . . .	1
Silex, about . . . . .	$\frac{36}{100}$
Total . . . . .	$6\frac{75}{100}$

And that the gaseous contents of a gallon are as follow :—

	Cubic inches.
Carbonic acid gas . . . . .	10·1
Air, somewhat less pure than atmospherical . . . . .	90·9

“Its medical effects have been found beneficial in all chronic diseases which arise from languor of circulation, where there is great debility of the system, or laxity of the solids; and in all cases where tonics and gentle stimulants are required. It acts upon the kidneys, and is of essential service in most cutaneous diseases, as has been noticed by the late Dr. Willis.

“I have known this water drunk by residents of Hampstead, with the addition of a tea-spoonful of the sulphate of magnesia in half a pint of the water, the first thing in the morning, with very good effects: as it will be perceived by the analysis that it contains a very small portion of the neutral salts, the addition, I think, is a very good one.”

For the purpose of shewing the estimation in which these waters were held in former times, I select the following passages and cases from a work on the Hampstead waters by a resident physician, Dr. Soame, published



about a hundred years ago. I visited the spring a few days since, and found that the subjoined description is still applicable to it, that it is open freely to the public, and that the water may be taken away in any quantity.

“The chalybeate spring adjoins the chapel, where there is a basin fixed upon a large pipe on the declivity of the hill. This pipe is so well stored with water, that (as the man who belongs to the well has informed me) it will throw off five gallons of water in four minutes ; it has that force, that it may be made to throw the water up in a perpendicular height twelve or fourteen feet at least, there being always a large quantity running away to waste. Here is water enough for thousands and thousands of people to drink every morning without dipping, running from a stone basin through a pipe ; it being like the widow’s cruise, having never yet been known to be dry, or scarce ever diminished ; so that it may justly be called the inexhaustible fountain of health.”

“Mr. Ochtorlony, a very worthy and wealthy merchant, being about forty years of age, and of a spare, thin habit of body, coming to this place about two years past to drink the waters, being then in a very bad state of health, labouring under indigestions and sickness of the stomach, with nauseous retchings and almost a total loss of appetite, together with a general marasmus, or wasting away of the flesh, so that he was reduced very low and weak ; yet by the help of these waters, accompanied with gentle exercise of riding on horseback every day, when the season would permit, he in a little time recovered his former

good state of health ; having now a very good appetite, and no manner of complaints, being perfectly well."

"A widow lady, not quite forty years old, about three years since came to drink these waters, in a very deplorable state, being full of heavy complaints of the nervous kind; being afflicted with violent headaches, sinkings of the spirits, and great disorder in her stomach and bowels, with retchings and tormenting cholics, and hysteric flatuluses, and sometimes swellings of her hands, face, and several other parts of the body, to an unusual form; attended with cramp-pains, sometimes in one side, sometimes in the other, with a long train of other disorders too tedious here to be related. Yet, with very little physic and the help of these waters, she is now in a tolerable state of health. She drinks them every season by my advice, and which she finds great relief from."

"Mrs. Edwards, about three years since, was seized with a violent hæmorrhage, and was reduced to a very weak and low condition, but so far recovered as to make use of the Hampstead waters. By the use of them she in a little time found a sensible alteration for the better; and in one season drinking of them she was quite recovered, and her flesh and strength returned to her. She also acquainted me of a maiden lady that, from a very weak, low condition, attended with sinkings of her spirits, a total loss of appetite, accompanied with great weakness and loss of flesh, was recovered by the use of these waters to a good state of health. She gave me an account of several others that have received great benefit from drinking the Hamp-

stead waters; but those mentioned will, I presume, be sufficient to satisfy the world of the excellency of these waters."

Although the Hampstead Spa has declined in popular estimation, yet I have no doubt that, combined with the fine pure air of the neighbourhood, its waters would in many cases prove beneficial to those whose avocations confine them to the close and densely peopled parts of the metropolis; and that many invalids would find a residence here in the summer of greater use to them than a shopful of drugs.

ST. CHAD'S WELLS.—These springs of aperient water are situated at the top of Gray's Inn Lane, near King's Cross, St. Pancras, and from their locality have not unfrequently been called St. Pancras' Waters.

The exact time, or circumstance, which led to the discovery of these springs, and to their first introduction to public notice, is not left on record; but there is every reason to believe they are of very ancient date; for, in accordance with the general practice of the early ages, when each mineral spring had its tutelar saint, to whose influence its healing properties were ascribed, these were dedicated to St. Chad, the first bishop of Lichfield, and from him obtained the name they bear. Jonathan Rhone, who was gardener and waiter at these wells upwards of sixty years, says, that when he first came into office at about the middle of the eighteenth century, the waters were in great repute, and frequently were visited by eight or nine hundred persons in a morning.

The gardens attached to the wells were at the period referred to very extensive, abounding with fruit-trees, shrubs, and flowers in great variety; but the extent of the grounds has been very much curtailed. A neat pump and pump-room have lately been erected, affording sufficient accommodation for visitors.

The well from which the waters are supplied is excluded from the external air. The water when freshly drawn is perfectly clear and pellucid, and sparkles when poured into a glass; to the taste it is slightly bitter, but not sufficiently so to render it disagreeable.

An examination of the water has been made at my request by Mr. F. R. Garden, with a view of pointing out the causes of its more remarkable properties, which appear to be due to the following salts; but time did not permit a quantitative analysis to be made: Mr. Garden has, however, kindly promised to make one for me at some future time:—

Sulphate of magnesia.  
Muriate of magnesia.  
Muriate of soda.

Carbonate of lime.  
Oxide of iron.

The two last held in solution by a very appreciable quantity of carbonic acid gas.

The effects of these waters are in perfect accordance with the analysis—actively purgative, mildly tonic, and powerfully diuretic. As a purgative, more so than could be inferred from their taste. A pint is the ordinary dose for an adult, which operates pleasantly, and without griping or leaving that faintness and languor which so gene-

rally follow the use of most other cathartics. While exercising its tonic property, it allays the irritability of the stomach, which so often precludes the use of strengthening and invigorating medicines. As a diuretic: it is from this quality, which it so eminently possesses, that in dropsy, or tendency to dropsical accumulations in the lower body or limbs, its preserving use is so much estimated.

The waters of St. Chad's Well are said to be of use in indigestion, liver complaints, dropsy, glandular obstructions, eruptions, and scrofula. They have been recommended by the late Mr. Abernethy and by Dr. Clutterbuck; and several cases have come to my own knowledge, in which the drinking of them has proved beneficial. The pump-room is open daily, at an early hour in the morning. The waters will bear transportation to any distance, and keep for any length of time in bottles well corked.

KILBURN WELLS.—These wells lie to the right of the Edgware Road, about two miles from London, in a dry but verdant and gently rising meadow. They spring about twelve feet below the surface, and are covered with a small stone cupola. The diameter of the well near the surface of the water is about five feet; the depth of its water in July and August is two feet; this, its general depth, increases in winter at times to three feet. The changes in the atmosphere do not appear to affect either the quantity or quality of the water. This mineral water is not perfectly bright, but of rather a milky hue; it has a mild and bitterish taste, with little or no briskness, as containing a very small proportion of fixed air. On dipping for the water,



or otherwise agitating it, a sulphureous smell is perceived near the surface; which, however, soon goes off in a temperature of about eighty degrees of Fahrenheit's thermometer. The specific gravity of the Kilburn water is 1.0071: its general temperature  $53^{\circ}$ , which was not affected by a change of ten degrees in the temperature of the atmosphere. While the water continues at rest, no ebullition of fixed air is perceived, and scarce any sulphureous smell.

The following analysis is drawn up from experiments of Mr. Bliss, and communicated by Sir Joseph Banks to the Royal Society in 1792:—

	Grains.
Oxide of iron, not appreciable.	
Carbonate of lime . . . .	8 $\frac{40}{100}$
Carbonate of magnesia . . . .	10 $\frac{75}{100}$
Extractive matter . . . .	3
Muriate of magnesia . . . .	33
Muriate of lime . . . .	14 $\frac{75}{100}$
Muriate of soda . . . .	18
Sulphate of soda . . . .	117 $\frac{50}{100}$
Sulphate of magnesia . . . .	265
Sulphate of lime . . . .	42
Insoluble matter . . . .	1 $\frac{50}{100}$
	<hr/>
	513 $\frac{90}{100}$

*Gaseous contents.*

	Cubic inches.
Carbonic acid gas . . . .	18
Common air . . . .	5.5
	<hr/>
Contents in a wine gallon . .	23.5

Its medical operation is said to be slow and gentle ; and it is supposed that it might be beneficially employed in cases of habitual constipation, of indigestion arising from crudities in the stomach, and of disorders in that organ induced by sedentary habits. I have been informed that in fine weather there are many visitors to these springs, who derive considerable benefit from drinking the water, which is sold at a cheap rate.

Having now enumerated the principal medicinal springs of the metropolis, I shall next direct attention to the subject of baths ; and after stating the leading principles by which their use is to be regulated, shall mention those baths in London which are the most deserving of attention.

It is only within comparatively few years that baths have become numerous in this country, which was, and still is, far behind most other countries in Europe in perception of the many valuable ends which may be attained or materially promoted by means of bathing. This reproach is now, however, rapidly passing away : commodious baths are constructing in all quarters ; few hotels are destitute of them ; and all the modern club-houses are amply furnished with what is beginning to be looked upon as a necessary of life rather than as a luxury. In many private houses, also, baths are now constructed ; and for the accommodation of the great body of the people, baths on an extensive scale have been formed in most districts of the metropolis. It becomes of importance, then, to point out wherein the advantages of bathing consist ; the cautions

necessary to be observed in it; and the circumstances under which it is unadvisable.

The principal varieties of baths are, cold, tepid, hot, salt water, medicated, and vapour baths. The cold bath has the ordinary temperature of the atmosphere, from about  $32^{\circ}$  to  $65^{\circ}$  Fahr. The mean temperature of the tepid bath is  $90^{\circ}$ . When the temperature is higher than the healthy heat of the body, it is a hot bath, which is rarely employed of a temperature higher than  $105^{\circ}$ .

Baths are further distinguished, according to the mode in which they are applied, into general and partial. The former is where the entire body is immersed, and is that form which is strictly called bathing. When the water is thrown over the body from above, it is denominated a shower-bath. The hip-bath or semicupium is that in which the lower part only of the body is immersed in the water: when the feet alone are bathed, the bath is a pediluvium.

*The Cold Bath.*—The effect produced by sudden immersion in a cold bath of a person in a state of health, is at first a feeling of chilliness accompanied with a slight shuddering; which is almost immediately succeeded by a sensation of warmth, which increases rapidly during a limited time, and raises the temperature of the surrounding water. If the body be removed at this period from the bath, and quickly rubbed dry, this feeling of warmth continues, the perspiration is increased, and the whole frame is invigorated.

These beneficial effects, however, are exchanged for

others of a very different kind if the immersion be continued too long. The capillaries on the surface are contracted, and the mass of the blood is forcibly driven in upon the internal organs; a feeling of languor and drowsiness creeps over the system; the joints become stiff, and the respiration quick and irregular. After a time the pulse gradually ceases; the action of the heart is weakened; until at length the mechanism of life is completely stopped, and death is the final result.

The symptoms occasioned by remaining too long in a cold bath are in part brought on much sooner if, instead of at once plunging into it, it be entered slowly and with hesitation, as is often the case; a shivering is produced, the feeling of cold is more severe, and sickness and headache sometimes supervene.

The general effects of the cold bath, then, are these:—A sudden shock is first given to the whole system, consisting in the determination of the blood to the interior of the body, and a rapid abstraction of heat: the greater flow of blood to the viscera promotes the generation of more abundant heat, and thus a reaction is established, which restores the temperature to its natural standard. Thus the vital powers are excited; and it is to this excitement that most of the advantages of cold bathing are referrible.

*The Hot Bath.*—The effects of this bath are very powerful, and it is to be employed only with the greatest caution. It increases the action of the heart, and quickens the circulation. If the heat of the bath be nearly 100°, or the immersion continue longer than a few minutes, the

blood is violently determined to the head, and warnings of approaching danger are given, which, if neglected, will end in insensibility and apoplexy. Of this a striking case occurred a few years ago to a friend of mine, a captain in the army, who, entering a hot bath at Southsea, the temperature of which was too high, was seized with apoplexy, and taken out dead a few minutes after he went into it. Owing to the dangers attending its use, many persons now prefer the vapour bath; but there are some cases in which it cannot be dispensed with: in reducing hernia, in restoring suspended animation from drowning, in obstinate constipation, and in many others, it is an agent of great efficacy and value.

A bath of the temperature of from 95 to 98 degrees is called a warm bath, and is of use in lowering the pulse and rendering the respiration slower, in cases where they have been unduly excited; it is also extremely efficacious in allaying morbid irritability. Accordingly it is beneficially employed in many cases of fever, in cutaneous diseases, in atonic gout and rheumatism, in spasmodic affections, such as St. Vitus's dance; and it is recommended by some writers in hydrophobia and hysteria. Dr. W. Saunders, who wrote a valuable work on mineral waters and the use of baths, considers that warm bathing is peculiarly well adapted to relieve those complaints in the bowels which depend on irregular or diminished action of any part of the alimentary canal, and especially useful in diseases of children. The best time for taking a warm bath is in the evening.



*Tepid Baths* are those, the temperature of which ranges from 85° to 95°, and on entering which no very decided impression either of heat or cold is felt. This bath is rather a means of *preserving* health than a very powerful curative agent, although there are some diseased states in which it is a useful auxiliary. As a means of securing personal cleanliness it is unequalled ; and it is chiefly as subservient to this end that tepid bathing is now becoming so prevalent. In pregnancy the practice of tepid bathing is found to allay most of the painful symptoms attending that state, and to expedite and facilitate parturition. In infancy and childhood frequent tepid bathing, by attracting the blood to the surface of the body, tends powerfully to diminish the liability to those diseases of the internal organs and of the brain, to which by far the greater part of infantile mortality is to be attributed. As a preparative to sea or cold-bathing, it is to be strongly recommended to those who have not been accustomed to cold baths, as it fits the system to encounter the powerful shock which the latter give to it, and which, without such preparation, is often highly injurious. Tepid bathing is extremely refreshing and invigorating after a long journey, and in hot, sultry weather. Some persons are afraid to use a tepid bath, from an apprehension of catching cold ; but with ordinary precaution there is very little danger of this happening. The body should be well dried immediately on leaving the bath, and active exercise taken ; attention to these simple rules will render a tepid bath perfectly safe at any time of the day and in any season of the year.

*Vapour Bath.*—In this bath the steam of water, either simple or medicated, is applied to any part, or to the whole of the body ; the immediate effects of which are the diminution of the quantity of blood sent to the internal organs, and the increase of the circulation in the capillary arteries of the surface, attended with abundant perspiration. Hence the use of this bath is of great efficacy in all cases of internal inflammation and fever. In inflammation of the bowels, in typhus fever, in bilious complaints, in rheumatism, gout, and many other diseases, the vapour bath is a safe and valuable auxiliary. When at the Royal Naval Hospital at Haslar, I repeatedly saw the most beneficial effects produced by this means on old sailors and marines afflicted with rheumatism, sciatica, and lumbago, occasioned by cold and damp on board ship.

Vapour baths are extensively used in the colder regions of the north, in Russia, Lapland, Sweden, Norway, and Denmark. Dr. Clarke, in his “*Travels in Russia*,” informs us that “there is no cottage so poor, no hut so destitute, but it possesses its vapour bath, in which its inhabitants experience both comfort and salubrity ; and it makes so necessary a part of the system of living, that it is used by people of every age and in all circumstances, by infants, and by women at their lying-in ; in almost all sicknesses, before and after a journey, after hard work or excessive exercise, to obviate the effects of fatigue.”

Sir Arthur Clarke, in his “*Essay on Bathing*,” observes that “the Russian constantly plunges at once from the

vapour to the cold bath, or exposes his body to the rigorous frost. This sudden transition hardens him to all the severity of climate, and to every vicissitude of weather—a transition which seems unnatural and dangerous to us. And we are also told by Lady Mary Wortley Montague, that ‘the Turkish ladies, who do not yield in point of delicacy to those of this country, bear this sudden alternation of temperature equally well with the Russian peasant.’ She further adds, ‘that they continue bathing at least four or five hours together, and, without taking cold, they go immediately from the hot bath to a cool apartment.’ ”

*Sea-bathing.*—Judging from the immense numbers of persons who avail themselves of every opportunity to indulge in sea-bathing, it might be reasonably inferred that its effects are agreeable and refreshing; and such is no doubt the fact. In most cases where a cold bath is advisable, sea-bathing will answer the purpose, and it has some advantages peculiar to itself. “As a cold bath,” says Dr. Rutty, one of the best writers of the last century on this subject, “sea-water is, in some tender habits not easily bearing water intensely cold, preferable to the use of fresh water, as deriving some warmth from the salt, which also gives it a repellent, discutient, attenuating, and drying quality, from whence we may be enabled to give some account of the following good effects of it found by observation, viz.—it frees from swellings and pains of the joints; applied warm it has been found to cure cachexies

and dropsies, and sometimes, as a cold bath, without any evacuation. Moreover, sea-water is of great use as a detersive and healing wash and fomentation; thus both ancients and moderns agree that it has excellent effects in curing the itch, and in some degrees the leprosy, in the herpes, in the scald head, &c. &c.”

The best time for bathing in the sea is early in the morning before breakfast, and, where practicable, it is preferable to bathe when the tide is coming in rather than when it is ebbing.

Those who have not the opportunity of going to the sea may derive considerable advantage from using the following artificial sea-water. Mix three ounces of muriate of soda, or common table-salt, or four ounces of bay-salt, to a gallon of water; the mixture will possess all the properties of natural sea-water; but it is better when applied tepid or warm. This is very easily made, and may prove serviceable to persons living at a distance from the sea.

*Shower Bath.*—The fall of the water upon the body in the shower bath adds considerably to the violence of the shock, and may produce serious injury unless due precaution be employed. I should therefore recommend that the water be tepid, rather than cold, when used for the first time. In hiring shower baths it should be ascertained that they are securely fixed. A case occurred the other day of a lady, on whom the reservoir of water fell, on the string being pulled, doing her considerable injury.

I now proceed to give an account of the principal baths in the metropolis; and as a considerable proportion of them are comparatively little known beyond their immediate neighbourhoods, many of my readers may probably learn now for the first time the proximity of baths to their places of abode.

THE OLD ROMAN BATH in Strand Lane demands precedence, on account of its superior antiquity over all the other baths of London, being probably sixteen or seventeen centuries old. This genuine remain of the former masters of the world has escaped the attention of the antiquarian historians of the metropolis, and has only recently been made known to the general public by a work which will be eminently useful in making the inhabitants of London better acquainted with the wonderful city in which they dwell.\* I visited the bath a few days ago in company with a medical friend, who has for twenty years been in the habit of bathing in it. The bath is supposed to be connected with the well which gives the name to Holywell Street; and its water is remarkably cold and refreshing. The bath is about thirteen feet long, six broad, and four feet six inches deep. It is not now used for the purpose of bathing, the proprietors having caused another bath to be constructed and supplied with water from it; and it is in the latter alone that bathing is allowed. Chemically considered, this water is the ordinary spring-

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\* Knight's "London."



water of London, containing lime, sulphuric, muriatic, and carbonic acids; but it is very pure and agreeable to the taste. It is a public bath, and the charge for bathing is 1s.

Next in antiquity to this is the COLD BATH in Bath Street (formerly Bagnio Court), Newgate Street, respecting which, when I visited it, I received the following information from Mr. Dunn, the superintendent of the bath. It is supposed to have been erected for Charles the Second, and is constructed in a manner worthy of a royal origin. It is covered by a lofty dome of much larger dimensions than that of the bath erected at Aix-la-Chapelle for the Emperor Napoleon, in which I have bathed: from the top of the dome the light is admitted. The floor of the bath is of white and black marble; the sides and dressing-rooms are lined with tiles on which Scripture pieces are painted; and every part of the building is of corresponding excellence. Altogether, this is certainly the finest *single* bath I have ever seen; for although as a collection of baths those at Teplitz are, as far as I know, unequalled, yet no *one* of them is comparable with this. The bath is supplied from a spring adjoining the building, which is said to have belonged to the monastery of Grey Friars or Franciscans, which occupied the site on which Christ's Hospital now stands. The spring is reported to have been noted from very early times. The bath has a female attendant, and is frequented by both ladies and gentlemen; and attached to the establishment there are

warm bath, shower baths, and an artificial salt-water bath. The price of a single cold bath is 1s.

PEERLESS POOL occupies the site of a pool of water arising from a spring which, in former times, supplied part of the metropolis with water: after the formation of the New River, this source of supply being no longer required, the pond was entirely filled up; but the spring was opened again in 1743, by a Mr. W. Kemp, who formed the present baths, and laid out the grounds ornamentally. The baths are immediately behind St. Luke's Hospital, in the City Road, within ten minutes' walk of the Bank. The pleasure bath is the largest in England, being 170 feet long, and 108 broad, with a depth varying from 3 feet 6 inches to about 5 feet. It is surrounded with trees and shrubberies, and although in the open air, is entirely screened from observation. This bath is greatly frequented in the summer, and affords a safe and pleasant place for the healthy exercise of swimming. On the premises there is a cold bath, faced with marble and paved with stone, 36 feet long and 18 broad, which is supplied by a remarkably cold spring, and has a convenient room for dressing. The terms for bathing are very moderate.

ST. AGNES LE CLAIR is a public cold bath in Old Street Road, which is supplied by a spring, the water of which is said to possess some medicinal properties: it is not much frequented.

THE LAMBETH BATHS, in the Westminster Road, consist of two tepid swimming-baths and a cold spring-water bath. The dimensions of one of the tepid baths are 150 feet

by 50, and it contains 200,000 gallons of water, supplied by a steam-engine which throws up 15,000 gallons per hour. The other is still more extensive, and is intended for the use of mechanics and artisans, who are admitted for the sum of three-pence. There are various rooms for the accommodation of bathers connected with this establishment, which altogether covers nearly an acre of ground.

THE CITY-ROAD BATH, on Pentonville Hill, is a very commodious cold bath, open to the air. Connected with the establishment there are warm baths, much resorted to by the inhabitants of the neighbourhood.

THE METROPOLITAN SWIMMING BATHS, cold and tepid, Shepherdess Walk, City Road, are very extensive and convenient; and have proved of great service to that confined and densely peopled district.

THE YORK BATHS, New Road, near the Regent's Park, afford accommodation for plunging and swimming. There are also several warm baths, both of fresh and salt water. There are altogether fifteen separate baths, each intended for one person; and the establishment is well adapted for those who desire greater privacy and comfort than can be had at the larger public baths. Beds may also be obtained here, which is a great advantage to persons from the country, who will often find a warm bath the most effectual means of relieving the fatigue attendant on a long journey.

THE PORTABLE-BATH COMPANY, 72 Oxford Street, sends out warm baths to private houses; and the persons employed being skilful and well acquainted with their business, this is the most convenient mode of taking a bath in

cases of illness, as every thing is done without trouble or confusion, and the bath can be had at a few minutes' notice, and at any time in the night—all the requisites being kept constantly in readiness.

THE RUSSELL BATHS, adjoining the Russell Institution, Great Coram Street. These warm baths are very convenient and well managed.

There are warm baths also at Long Acre ; Old Gravel Lane ; Chapel Place, Vere Street, Oxford Street ; St. Mary Axe, No. 34 ; Harley Street, Cavendish Square ; Leicester Square, No. 37 ; Windmill Street, Haymarket. A sea-water bath, George Street, Adelphi.

There are floating baths at Westminster, Waterloo, and Blackfriars Bridges, for the accommodation of those who prefer a current of water.

I have now to notice the principal vapour and medicated baths.

FUMIGATING AND VAPOUR BATHS, Great Marlborough Street. These baths were commenced in London by Dr. Green, in 1820. He has no pretensions to the invention of them, but has improved upon the construction of those directed by the French Institute to be erected in the various hospitals, prisons, &c. With that learned body rests the merit of introducing this essential means as a remedy for various diseases. The fumigating-box, employed by Dr. Green, furnishes also the best means of administering simple vapour baths, as in the fumigating-box, or bath, the patient breathes the external air, and no accumulation of heat takes place at the head or chest,

the bottom being constantly kept the hottest part of the bath; hence their utility in cases where there is determination of blood to the head and chest, when the more usual vapour baths would be inadmissible.

Much credit is due to Dr. Green for the patience and zeal with which he has so long advocated, and himself carefully superintended his establishment, and which from the beginning has constantly been growing in celebrity. The fumigating baths have, from the time of their introduction into this country, been resorted to by the leading members of the medical profession and their families, and by the first classes of society. It is another proof that England is not yet a bathing nation, or these fumigating baths would long ere this have been extended all over the country, as they are on the Continent. "They manage these things better in France," as Sterne says,—in a single hospital in Paris, that of St. Louis, they administer the surprising number of 180,000 annually.

ROYAL BATHS, 9 Suffolk Place, Pall Mall East. This establishment comprises Turkish, medicated, vapour, shampooing, *barège douche*, warm and shower, hot air, sulphur, aromatic, and sea-water baths, and also a foot-bath for tender feet and corns. Invalids and others requiring apartments and baths may here have every accommodation.

DR. CULVERWELL'S Bathing Rooms, Lothbury, contain warm baths of every description, both simple and medicated, as well as vapour baths.

MR. WHITLAW'S Medicated Vapour Baths in Argyle



Street, Oxford Street, are distinguished from most other vapour baths by the circumstance that herbs exclusively are employed in their preparation.

I have now enumerated the chief mineral springs and baths of the metropolis, which collectively constitute a most important means for the preservation of the health of the many here congregated: were their uses more extensively known, I am convinced that much benefit would result from their employment; and I trust that this work will be the means of diffusing a knowledge of them that will prove of material advantage to many denizens of this overgrown capital.

I now proceed to enumerate and describe the principal spas and watering-places, beginning with those of Britain, and next taking those of the Continent. Mineral springs are very diversified in their constituent parts, but they may nearly all be included under the following classes: the acidulous, alkaline, chalybeate, saline, and sulphureous—names which indicate their distinctive properties, and consequently the classes of disease for which they are appropriate means of cure. As my object is practical utility, I shall not enter into any antiquarian discussions respecting the history of the various springs mentioned, but shall confine myself to stating their localities, the cases in which their waters are useful, and the principal precautions necessary in using them; and for greater facility of reference, I have adopted an alphabetical arrangement.

A visit to a watering-place offers so many charms and advantages to those who are confined in towns during the greater part of the year, and who have but a limited respite from the toils and cares of business, that the vast majority of such persons prefer it to any other mode of spending their leisure. There can be no doubt that they act wisely in so doing; but some directions will be found useful in guiding them and others to the proper choice of watering-places, which is a matter of much importance. Some places are proper to be selected for purposes of recreation and amusement, while others are adapted only for those actually labouring under disease. Yet it too often happens that this necessary distinction is not observed: healthy persons are found resorting to Harrowgate, which, justly celebrated as its waters are for the cure of cutaneous diseases, and for which they are equal to any of the German spas, is nevertheless not the place I, for my part, should choose for purposes of enjoyment and relaxation; the numbers of invalids in the neighbourhood furnishing plenty of spectacles by no means calculated to promote cheerfulness and hilarity; and similar remarks may be made of Buxton, which is the proper resort of the gouty and rheumatic: while, on the other hand, the infirm and diseased flock to some busy, fashionable watering-place, where they are assailed by temptations of every kind to depart from that strict regimen essential to their recovery, and thus too often return worse than they went. I would here notice the fact, that many persons go year after year to

the same place—Margate, Ramsgate, or Brighton—never changing their route or destination; a plan which considerably diminishes the benefit that might be derived from their trips. Change of scene and novelty are admitted to be the best restoratives for those who are suffering from mental excitement of any kind, and are therefore always to be desired. Margate, Ramsgate, and Brighton, are towns which undoubtedly deserve the popularity they have acquired; but there is no reason why they should be the only places of resort.

Another practice which it is desirable to see changed is that of many persons who visit the places nearest to their usual residence, and thus lose a great part of the benefit arising from a change of air and scene. I should recommend the contrary plan, of going to those at a considerable distance; and in these days of cheap and rapid internal communication, this advice may be acted upon with little additional expense or trouble.

ABERYSTWYTH.—This town, on the coast of Cardiganshire, possesses the attractions of a pleasant and convenient beach, and much delightful scenery in the neighbourhood, as well as a chalybeate spring of considerable efficacy. There is every accommodation for sea-bathing:—the machines are very good; and there are several warm salt-water baths. The town is rapidly increasing, in consequence of the influx of visitors during the bathing-season; and accommodation is cheap and excellent. The town possesses a library, and news and reading-rooms; and there are in the vicinity the ruins of a castle,

which, being in an elevated spot, commands an extensive and splendid prospect of the coast for many miles.

ANGLESEY.—'The following account of this place, which I visited a short time ago, has been kindly furnished to me by my friend Dr. Mortimer, physician at Haslar Hospital:—

“Anglesey, a village near Gosport, and within a mile of Haslar Hospital, has lately risen into great importance as a sea-bathing place, where an extensive range of spacious houses has been erected facing the south, and looking upon Spithead and the Isle of Wight, directly opposite Ryde, from which it is distant only three miles. The site of this villa has been most judiciously chosen; it is situated near the shingly beach and clear water of Stokes Bay. It is hemmed in on all sides by the sea and its creeks, and is so nearly on a level with their surface, that it enjoys the fullest influence of a marine atmosphere that can well be conceived. The houses of Anglesey are lofty and commodious, they have all gardens attached to them, and the rents are moderate. There is an ample and tastefully arranged public garden between the houses and the sea, furnished with seats and gravel walks, baths and a reading-room. It has also a good inn, and numerous lodging-houses. The prevailing winds are westerly, which acquire a force and freshness by rushing through the narrow gorge of the Needles, and by the conflicting tides of that celebrated channel and the waters of Southampton. The character of the wind is dry, sharp, and bracing—sharper, indeed, than the thermometric heat would indi-

cate ; but it has none of the chilling effects of cold, damp winds. Situated on the sea margin of an extensive alluvial plain, which it bounds to the south, it is protected from the intensity of the northern blasts by the moderately high tract of the Portsdown hills. It is refreshed by the southern sea-breeze that sweeps across the English Channel, and imbibes a certain fragrance in its passage over the Garden of England. The easterly wind, even in winter, is freed from its piercing and noxious qualities by the long tract of sea over which it passes ; and Gosport is found, by accurate registers that have been kept by Dr. Burney for a series of years, to be several degrees warmer in winter than Hastings, Brighton, or other places on the south coast of England.

“ It will be seen, then, from the topography which we have given of Anglesey, that for those who require and seek a dry, bracing air, which is contrasted with the humid, relaxing climate of Devonshire, few places in England can compete with it ; and invalids may be readily brought to it from London in three hours, by the easy conveyance of a railroad. It has no beauty of scenery to recommend it ; but it possesses the solid advantages to an invalid, of a quiet country residence, and a freedom from the smoke, bustle, and *gêne* of a crowded watering-place.

“ The complaints that a residence at Anglesey, combined with sea-bathing, is likely to benefit are, those scrofulous affections that occur in relaxed and feeble constitutions, nervous diseases, hypochondriasis, chronic rheumatism, gout, and that general ill health which has been entailed



by close application to business and study, and, above all, from constant and over-active medication."

APPLEDORE is situated on the north coast of Devonshire, and possesses a beach of sand three miles long, which is admirably adapted for walking or riding, and of course presents rare opportunities and facilities for sea-bathing, which is further promoted by bathing-machines. It is near the junction of the Taw and the Torridge; and the scenery around the town, on the banks of these rivers, and on the coast, is such as of itself renders a visit to this place truly delightful. The air is mild and salubrious, and combined with the invigorating effects of sea-bathing, is well calculated to restore vigour and tone to the system of those who have been injured by excessive mental excitement or occupation. It is abundantly supplied with all necessities by a market held in the town three times a week, and accommodations are plentiful.

BATH.—The natural warm springs of this city have been known and celebrated from very early times, the Romans having been acquainted with, and having employed them, as the remains of baths erected by them sufficiently prove. For the purpose of acquiring accurate information respecting the waters, I lately visited Bath; and through the kindness of several resident medical practitioners, I am enabled to give the following account, in which I have endeavoured to condense what is most important.

Bath is in the county of Somerset, on the banks of the Avon, and about 107 miles from London; a distance

which, since the completion of the railroad, can now be gone over in a few hours. The magnificence of the city is well known ; and its situation is such as to make it a most desirable winter-residence.

There are four public baths, viz., the King's and Queen's Baths, the Hot Bath, and the Cross Bath. The private baths are those belonging to the corporation in Stall street ; and the Kingston Baths, in the occupation of Dr. Wilkinson.

Last December I visited the Pump-Room and the King's and Queen's Baths, and the Royal Private Baths in Stall Street, in company with Mr. Green, the lessee, from whom I received much information.

The waters of Bath are the strongest of the saline thermal springs of England, and are the only ones that can be called hot. The highest temperature of the King's and Queen's Baths, which are connected together, is  $114^{\circ}$  of Fahrenheit. The spring by which it is supplied pours forth 128 gallons every minute, or 184,320 gallons per diem. The Hot Bath has a temperature of  $117^{\circ}$ , Cross Bath of  $109^{\circ}$ .

Some writers consider that these three springs are derived from one source, and that their various temperatures arise from their more or less circuitous passage to the surface.

The Kingston Baths I also visited ; and Dr. Wilkinson afterwards presented me with his work on the Bath waters, from which I extract the following information. The temperature of this spring is  $114\frac{1}{2}^{\circ}$ .

Considered chemically, the waters of all the springs are identical, thus strongly confirming the opinion, that they have a common source. For analysis, *vide* analytical table.

“The water, when fresh pumped, appears clear and transparent; but if retained some time in the glass, it assumes a muddy appearance, and makes a slight ferruginous deposit. This deposition is accelerated by placing the water under an exhausted receiver: the air, which is given out by boiling the water, differs only from the air disseminated through common spring-water by containing a larger proportion of carbonic acid gas: during the boiling, the ferruginous deposition is increased.

“When the water is drunk immediately from the pump, there is a very slight chalybeate taste; in this respect there is no sensible difference in any of the hot springs, except those of the Cross Bath. This metallic taste undergoes no change at any period of pumping, unless the water is allowed to remain in the pump-barrel or suction-pipe until its temperature is lower than 100°.

“The small portion of iron detected in the Bath waters is found to be in combination with carbonic acid—an arrangement insoluble in water, but which is kept in a state of solution by the carbonic acid gas intermixed in the water.

“We must regard the Bath waters as a stimulant, by its temperature increasing the pulse and the warmth of the stomach; as a diluent, holding in solution muriatic and sulphuric combinations, promoting the secretions, and, by

its volatilised metallic matter, inducing some action on the lungs. Those who have carefully attended to the effects induced by equal quantities of common water and Bath water at the same temperature, are well convinced of the more powerful stimulating effects of the latter.

“A person in full health, taking a glass of common water at the temperature of  $110^{\circ}$ , experiences a warmth and a gently increased circulation ; whilst the same quantity of Bath water will frequently induce an intoxicating kind of giddiness, a determination of blood to the head, and evince superior stimulating powers.

“From the preceding analysis, it appears that the small portion of saline matter held in solution cannot, from analogical experiments, be deemed as the exciting agent ; and as it appears probable that there is some carbonate of iron detached in solution of carbonic acid gas, there may be some agency of this volatilised matter on the lungs.

“In all cases of an inflammatory kind, or where there is an indication of too much blood being determined to the vessels of the brain, or any symptoms of an apoplectic nature, these waters should be carefully avoided ; so also in pulmonary affections, and in all complaints which would be aggravated by an increased circulation, the Bath waters would be productive of mischief. When the organs of digestion are in a state of debility, arising from intemperance in eating or drinking, or connected with constitutional weakness, originating from other corporeal affections, in such cases the Bath waters are found beneficial.

“As the Bath waters induce an increase of circulation,

the utmost prudence is required on the commencement of their use: although they promote the secretions by the skin and kidneys, yet they are not observed to possess any aperient property; hence, if there exist a state of constipation, it is advisable to have previous recourse to some gentle opening medicine.

“In general, the quantity taken is from four to eight ounces twice a day, beginning with the smallest-sized glass, and progressively increasing as the symptoms may indicate. With some practitioners it has been the custom of recommending the pump at the Cross Bath, as the mildest, to be commenced with, and to gradually proceed with the other pumps. A more accurate examination of the waters clearly proves that the Cross-Bath water is only the hot spring-water diluted with common water, which casually flows with it; and that all the other springs, viz. the Hetling-Court, the King’s Bath or Pump-Room, and the Kingston Pump-Room, are all ramifications from the same common source, and possess the same medical and chemical properties.”

When at Bath I had the pleasure of seeing Dr. Barlow, senior physician to the Bath Hospital, who paid me much attention, and kindly presented me with a copy of his valuable work on the Bath waters, in which he shews its efficacy in gout, rheumatism, palsy, and eruptive diseases.

I also visited the hospital, in company with Dr. Daniell, and saw several cases of rheumatism, and of colica pictorum, which had been relieved by the internal and external use of the waters. I also visited the Casualty Hospital.



The General Hospital was suggested by the celebrated Nash, and was first opened in 1742; its object is to extend to the poorer classes, living at a distance from Bath, the benefits arising from the use of the waters: the poor of the town are excluded from participating in this charity, as there are other easily accessible means for them of enjoying all the benefits of the waters.

Several improvements have been effected in the management of the waters, and the charges for bathing, &c. been considerably reduced, and are now exceedingly reasonable.

No watering-place, either at home or on the Continent, possesses greater advantages, both natural and artificial, than Bath. The buildings connected with the springs are well adapted for their purpose, and several of them are, moreover, magnificent in point of architecture. For many years past the number of visitors to Bath has been small compared with that of those who frequented it during the greater part of the last century. But this change, I conceive, is not to be attributed merely to the decline of the Bath waters in public estimation as remedial agents, but to the less frequency of gout and other diseases occasioned by intemperance and luxurious modes of life, in which the folks of the past century indulged much more freely than their successors, who are better instructed in the true science of life and enjoyment.

It is not surprising that Bath has always been famed for its medical men; and those now practising there fully maintain the reputation of the town in this respect.

The following are the principal physicians and surgeons now resident there:—Drs. Barlow, Daniell, Crawford, Pring, Harmer, Watson, Wilkinson; Messrs. Barrett, Brown, George, Norman, Soden, Skinner, &c.

Bath is abundantly supplied with every necessary of life by means of a market, which I went to see, and was struck with the plenty and cheapness visible in it.

**BLACKPOOL.**—This watering-place, on the coast of Lancashire, is one of the most frequented in the north-western part of England. The purity and salubrity of the air are attested by the remarkable longevity of the inhabitants. The sands, at low-water, are nearly half a mile broad, and stretch, on each side of Blackpool, a distance of about ten miles. There are bathing-machines, and boxes for the same purpose, upon the beach. There are fixed times appropriated for the ladies to bathe, which are signified by the ringing of a bell: when the ladies retire, the bell rings for the gentlemen; and if any gentleman be seen on the parade before this signal, he has to pay a forfeit. The lodging-accommodations are good and reasonable.

**BOGNOR** is on the coast of Sussex, sixty-seven miles from London, and was first brought into notice by Sir R. Hotham, about 1786. It is situated on a dry, healthy spot, and enjoys an atmosphere remarkable for its purity. It is a very retired, quiet place, and well adapted for invalids whose object in going to the coast is not to indulge in pleasure, but to recruit their constitutions. The beach is composed of fine, firm sand, equally well adapted as a bathing-place and as a promenade and

riding-ground. The coast is sheltered from storms; and the sea is consequently seldom otherwise than smooth, which enables the visitors to bathe with little interruption, and to a late period in the season. There is one inconvenience to which Bognor is exposed, in common with Worthing, that the tide frequently throws up large quantities of sea-weed upon the beach, the action of the sun upon which produces effluvia which, to the stranger at least, are far from agreeable: nor is the scenery of the neighbourhood either picturesque or diversified. Bognor is much resorted to by the inhabitants of Chichester, which is only about seven miles off: its proximity certainly gives it some advantages, but not sufficient to render it advisable to neglect the benefits arising from removal to a greater distance, and from variety of circumstances.

BRIGHTON.—This, which may perhaps be regarded as the most fashionable and frequented English watering-place, is situated on the coast of Sussex, about fifty-two miles from London, with which the railroad affords the means of expeditious communication. The accommodations for bathing in the open sea are excellent; and there are also many well-conducted private baths, into which the sea-water is raised. The place is very healthy; and it is rarely that any of the inhabitants or residents are affected with colds or pulmonary complaints. For children of delicate constitutions it is well adapted; and there are several excellent schools at which their education may be satisfactorily conducted. The town has increased very rapidly in size since the commencement of the present cen-

tury ; its having long been the favourite abode of royalty having attracted crowds of annual visitants of the higher classes. There are many splendid rows of buildings ; and accommodations for lodging of every description are easily procured.

One of the most powerful chalybeate springs in England is at Brighton. It has recently been analysed by Professor Daniel, who gives as the result, that in a pint of water there is 1.66 grains of sulphate of iron. But this spring is very little used, especially since the establishment of the Royal German Spa, which requires some notice. It was founded by Professor Struve, of Dresden, in 1825, and is supplied with artificial imitations of the principal mineral waters of Germany, which are said to be identical in composition with the real waters. The waters imitated are those of Carlsbad, Ems, Silesian Salzbrunnen, Kissingen, Kreuznach, Heilbrunn, Marienbad, Pyrmont, Spa, Seltzer, &c., as well as those of Saratoga, in the United States. The last time I was at Brighton, I drank several of the waters, and can say that they closely resembled the real waters which I had tasted on the Continent ; the waters of Ems and Seltzer appeared to me to be the closest imitations ; the latter bears carriage very well.\* It is of course to be remembered, that although, so far as the mere waters are concerned, these artificial productions may be sufficient substitutes for the originals, yet it is not to be supposed

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\* The cold waters may be had in London of Messrs. G. Waugh and Co. Chemists to the Queen, 177 Regent Street.



that the drinking of them will produce the same effects as if the spas in Germany were visited and the real waters drunk at their sources, since the benefits arising from the latter plan are, to a great extent, independent of the waters, as I have already shewn. The factitious waters are recommended by many physicians; and they are employed on the Continent itself with the same confidence as the natural springs. When last at Dresden I heard them very highly spoken of.

Brighton contains many eminent physicians and surgeons; but as Sir Henry Hallford has the best practice in the metropolis, so Sir Matthew Tierney enjoys the most extensive in Brighton.

BRISTOL AND CLIFTON.—Bristol lies on both sides of the Avon, 117 miles from London and 13 from Bath, and is situated in a very healthy and pleasant country. By the Great Western Railway it may be reached in four or five hours.

I visited Bristol last December, and went over the Infirmary, which is one of the finest and best-conducted institutions of the kind in the kingdom: what particularly pleased me was, the evident gladness with which the medical attendants, with whom I went round—namely, Mr. R. Smith, senior surgeon, who has been attached to the Infirmary more than forty years, Mr. Lowe, and Mr. N. Smith—were received by the patients, so different from the looks of apprehension too often visible at other hospitals on such occasions. The way in which the medical gentlemen spoke to the patients was of so kind and



affable a description as fully to account for the confidence evinced by those under their care, and cannot fail to exercise a satisfactory influence upon the patients. Through the liberality of a benevolent lady, two new wards had recently been opened, one of which is appropriated to females. I visited the latter, and was struck with the cleanliness and comfort which pervaded it; and it being Christmas-day, the room was ornamented with sprigs of holly and other evergreens: the goodness of the fare for the day was indicated by the fact, that a patient who was to be discharged, begged to be allowed to remain and partake of it—a request which was kindly granted.\*

On the occasion of this my visit to Bristol, I received much attention from Dr. Pritchard and Dr. Symonds; also from the well-known and scientific surgeon Mr. King, who introduced me to Mr. Herapath, the well-known chemist, by whom I was presented with his analysis of the Bath waters.

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\* My visit to this admirable establishment reminded me of having attended his late Majesty William IV., then Duke of Clarence, and Mr. Wilberforce, on their going round Haslar Hospital after the battle of Trafalgar, who expressed their approbation of the mode in which the institution was conducted; and Mr. Wilberforce was so much affected by the care and attention bestowed upon the brave men who had spent their blood in defence of their country, that he shed tears of pleasure at the sight: he would not, I am sure, have been less gratified, had he been with me when I visited the Bristol Infirmary.

The Hot Well is about a quarter of a mile from the western boundary of Bristol, in the parish of Clifton, from which it is sometimes called the Clifton Hot Well. It rises at the foot of the limestone rocks which border the Avon, gushing from an aperture in the solid rock. The temperature of the water is between  $72^{\circ}$  and  $76^{\circ}$ , and sixty gallons are discharged per minute. Its effects are sedative, owing to the large quantity of carbonic acid gas, which is its principal ingredient. The water is without smell, and pleasing to the palate, as may be inferred from the fact, that it is used by the inhabitants for domestic purposes, and is supplied to the houses by pipes. In former times the medicinal virtues of this spring were much exaggerated, and, as was generally the case a century ago, were considered useful in almost all diseases. Its reputation has now, however, declined below what it deserves: an unprejudiced estimate of its uses will admit that it is well adapted to be of service in many forms of dyspepsia and symptomatic fever. It is also extremely efficacious in allaying thirst—a quality attributable to its carbonic acid. It is bottled and sent to most of the larger towns in this country as well as abroad.

The climate of Clifton is one of the mildest and least humid in the west of England; and the air is bracing and invigorating. The place, therefore, is well suited for the residence of persons affected with chronic derangement of the organs of digestion, and of those of a scrofulous and relaxed constitution. It furnishes sheltered situations for

winter and spring residence, and open airy ones for summer and autumn.

Lodgings and living are very cheap. There are two good hotels: a short while ago there was another, but it was closed when I visited Clifton. When the Suspension Bridge over the Avon is finished, it will add much to the convenience of the place.

BROADSTAIRS is a small, retired watering-place on the eastern coast of Kent, between Margate and Ramsgate, either of which places may be reached by walking upon the sands at low-water. The sands at Broadstairs are limited, but very smooth, and gently sloping, well adapted for bathing. The North Foreland, with its lighthouse, is between Broadstairs and Kingsgate.

BUXTON.—This celebrated spa is in Derbyshire, about 160 miles from London. It owes its fame to several natural warm springs which, among English mineral waters, rank next to those of Bath in importance, and have been known ever since the time of the Romans. The chief spring, known as St. Anne's Well, is principally used internally: the others for bathing. The temperature of the water is 82° Fahr.; and in its general properties and uses it differs little from the Clifton Hot Well. The water is used both externally and internally, for rheumatic and scorbutic affections, for gout, and for pulmonary diseases. It is of a very simple nature, its analysis yielding only minute quantities of calcareous earth, sea-salt, and aperient salt. Like many other English springs, Buxton water fails to

attract, at present, such crowds of visitors as it formerly did; but many persons from the midland counties still resort to it—induced, probably, as much by the beauties of the surrounding country as by the hope or desire of improving their health by drinking the waters.

CHARMOUTH.—This village is on the coast of Dorset, between Bridport and Axminster—the neighbourhood abounds in fossils, organic remains, and minerals; and the beach is a convenient place for bathing.

CHELTENHAM.—This town is situated in Gloucestershire, at the foot of the Cotswold Hills, which protect it from the east and north-east winds, and contribute greatly to the geniality of its climate. It owes its existence to the discovery, in the early part of the last century, of several saline springs, which soon acquired considerable celebrity; but it is during the present century that the town has increased most rapidly. It is laid out with great taste, and, owing partly to its modern origin, and partly to the fact, that the persons who chiefly frequent it are of the higher classes, with great attention to comfort and convenience.

Many new springs have been found of late years by boring; and, though the general properties are the same in all the springs, yet the proportions of the mineral constituents vary considerably, and some of the springs contain substances absent in the others. Hence they may be divided into three classes—the saline, sulphureous, and chalybeate. Several of the springs also contain iodine and bromine. As may be supposed, from the various contents of the Cheltenham waters, they are serviceable in many

forms of disease, but chiefly in dyspepsia and the affections arising out of it. Thus, it is recommended in all bilious disorders, in chronic rheumatism, gout, scrofula, and cutaneous diseases. Many of the patients at Cheltenham are persons from the East Indies, labouring under supposed disease of the liver, for which they have undergone long courses of mercury, by which their constitutions have been undermined; the real disease being, in many cases, an affection of the ganglionic plexus, producing indigestion, &c., as shewn in the previous part of this book. Now, for such persons, and for all who have been debilitated by taking too much medicine, the waters of Cheltenham, combined with temperance and abundant exercise in the open air, will prove extremely beneficial. We read, indeed, of persons having the water brought to their bed-sides, and drinking it before they get up; but we may safely say, that but little advantage can be derived from such a practice; the water is almost inert unless its operation be promoted by out-door exercise.

The climate of Cheltenham is very genial, and renders it well fitted for the winter-residence of invalids. I visited Cheltenham at the latter end of last December, when the air was beautifully clear, and not a cloud was to be seen. The soil is sandy, which contributes to the dryness of the atmosphere, and its consequent freedom from fogs and mists.

On the occasion of my visit I received much kindness and attention from Dr. Baron, Dr. Boisragon, Dr. T. Boisragon, Dr. Conolly, and Mr. Murley. Dr. T. Bois-



ragon has since favoured me with a communication respecting the waters, from which the following are extracts.

“At the original well, the springs contain chiefly the muriates of soda, lime, and magnesia, together with the sulphate of soda ; which latter, however, is in the largest quantity (as it is also at Pittville), except in the Nos. 1 and 6, where the muriate of soda prevails ; while at the Montpellier establishment the greater number of salts are the sulphates of the same bases, together with the muriate of soda, which in these springs, as in the strong saline of Pittville, and the aperient saline of the Cambray Spa, prevails in quantity.

“These springs, from containing several salts together, as well as a small proportion of free carbonic acid, are more useful in effecting a free, gentle, and general action of the alimentary canal than it is usual to find those salts are which are exhibited in a simple form. Added to which, a considerable corroborant effect is produced by the presence of iron in small quantities, as *e. g.* in Nos. 1 and 2 Montpellier ; in the latter of which, sulphuretted hydrogen is found to exist, and which renders it useful in cutaneous affections combined with torpidity of the hepatic functions.

“But there is an ingredient possessed by some of the springs at the Montpellier establishment which, from the quantity in which it is found, perhaps, individualises these waters from all others in Great Britain. I allude to their containing iodine, discovered by Mr. Cooper, traces of which were previously mentioned by Dr. Daubeny. It appears, from the tables of comparison given of the different

springs in the United Kingdom, that in no instance does iodine exist in so large a proportion as in the springs of Cheltenham, especially No. 5 of the Montpellier Spa, and the value of which is in many cases (having their origin in loss of tone, such as *e. g.* amenorrhœa, leucorrhœa, &c.) much enhanced by its being combined with iron, in the proportion of four-tenths of a grain to a pint of water.

“Iodine is found in the Cheltenham springs in the form of hydriodate of soda; and, from the small differences of quantity in which this substance is found, varying from one-eighth of a grain to one-fourth of a grain in a pint of water, the mode of adjusting the dose to the case is greatly facilitated; and these waters may be considered quite strong enough for medical purposes, and to have, besides, the great advantage of the minute division arising from the diffusion of a small quantity of the metal through a large quantity of the fluid.

“These springs may be recommended in all cases of debility in the lymphatic system in strumous habits; and I would suggest that, as iodine, in combination with an alkaline base, viz. hydriodate of potass, is now a favourite remedy in rheumatic affections, so the hydriodate of soda, in combination with salines, which may have a refrigerant effect, might not be an immaterial adjunct to any treatment especially directed to the cure of such affections.”

Mr. Buckman, the intelligent chemist of Cheltenham, has favoured me with his analysis of the Pittville waters, from which I copy the following latest analysis of those Cheltenham waters which contain bromine and iodine:—

Table, shewing the Saline Contents per Pint of the Bromine and Iodine Springs in Cheltenham.

Locality	Name	Solid contents per pint	Muriates			Sulphates			Carbonates			Oxide of Iron.	Bromine	Iodine	Gases		Authority for the Analysis
			Soda	Lime	Magnesia	Soda	Lime	Magnesia	Soda	Lime	Magnesia				Sulphid. Hyd. cub. in.	Carb. Acid cub. in.	
Montpellier Spa.	No. 1. Saline Chalybeate.	48·4	27·0	..	..	14·7	1·3	4·0	1·1	..	..	·3	Hydrobromate of Soda, a trace.	Hydrodate of Soda, a trace.	..	2·5	Cooper.
Do.	No. 2 Sulphuretted Saline.	74·57	35·3	..	..	28·4	3·1	7·2	..	..	..	·42	..	Hydrodate of Soda, ·15	1·6	0·4	Cooper.
Do.	No. 4 A. Ioduretted Saline.	106·25	51·4	8·3	7·5	14·0	2·1	17·1	2·4	Lime and Magnesia, 3·2		..	..	Hydrodate of Soda, ·25	A trace.	1·6	Cooper
Do.	No. 5. Chalybeated Magnes. Saline.	85·85	9·7	13·1	10·5	..	3·1	47·0	1·7	..	..	·4	Hydriod. of Soda, with a minute quantity of Hydriod. of Soda, ·35		..	1·2	Cooper.
Old Wells.	No. 1. Original or Old Well.	81·51	58·20	6·21	2·54	14·56	..	..	..	..	..	..	..	Hyd. of Soda, 1 gr. to 60 gal. of water.	..	..	Seadamore.
Pittville.	No. 1. Strong Saline.	52 grs.	27·16	..	..	17·55	·89	..	..	·20	..	..	·02 or 1 gr. to 6¼ gal.	A trace.	..	..	Daubeny.
Do.	Do.	67·5	48·6	..	..	20·2 Cyst.	..	5·5	5·6	1·0	..	..	A trace.	..	..	1	Daniel.

The accommodations both at hotels and in private lodging-houses are excellent; and, as I found, much less expensive than was formerly the case, although great improvements have been effected in them of late years.

I may mention, that it is the prevailing custom with the general practitioners of the town to charge a fee for attendance, and not for the medicine sent: a plan which I highly approve of, as it diminishes the temptation to that system of over-drugging, which has been too common, but is daily declining in public and professional estimation.

CROMER, YARMOUTH, LOWESTOFF, and ALDBOROUGH, on the Norfolk and Suffolk coast, are places favourably situated for sea-bathing.

DAWLISH.—This watering-place is on the south coast of Devonshire, between the rivers Ex and Teign. It is situated in a valley, and surrounded on all sides, except the east, by hills, which contributes to make its climate warm, and adapts it admirably for those whose complaints may render such a situation desirable.

DOVER possesses a fine, shingly beach, well adapted for bathing, which is further facilitated by machines and every other species of accommodation. It is a lively, bustling place; and no one need die of ennui who can derive amusement from looking upon the ocean, covered with vessels of all kinds, or from visiting the romantic scenes in the neighbourhood. These attractions, and its proximity to the French coast, render it a very favourite watering-place; and crowds of visitors annually repair to it.

EAST BOURNE, a short distance from the coast of Sussex, and twenty-two miles east from Brighton, is a quiet, retired place, which has good sea-bathing; and possesses, also, a chalybeate spring, that is but little used, however. For persons making an excursion round the coast, East Bourne is a very nice place to sojourn at for a little while; but its attractions are hardly sufficient to render a longer residence desirable.

EXMOUTH, as its name denotes, is situated at the mouth of the Ex, on the south coast of Devonshire. It is the oldest watering-place in the county; but has received its principal improvements during the present century. There is a bar at the mouth of the river which renders the water near the town very smooth, and is so favourable to bathing, that even ladies may enjoy that exercise almost every day of the year: there are warm-baths both of fresh and sea water.

HARROWGATE is a village in Yorkshire, about two miles from Knaresborough. It is divided into Upper and Lower Harrowgate, in the former of which are situated the chalybeate springs; in the latter, the sulphureous, which are the most important of the kind in England.

There are six sulphur springs, of which the Old Sulphur Well is used for drinking, the others chiefly for bathing. The water of the Old Sulphur Spring is bottled and exported to various parts of England. It is extremely efficacious in cutaneous diseases, particularly herpes; in chronic rheumatism and gout; in diseases of the urinary



organs; and in affections depending on inactivity of the liver and some other disorders.

The chalybeate springs are also six in number, five of which are purely chalybeate, and bear considerable resemblance to the waters of Tunbridge. The spring called Oddy's contains a large proportion of iron, but differs from the others in having also a great quantity of saline substances, which nearly neutralise the effect of the iron. It is an aperient and diuretic, and is chiefly of service in affections dependent on derangement of the liver, and in weakness of the stomach attended with constipation, where a pure chalybeate water would be inadmissible.

The fact, that great numbers of persons affected with cuticular diseases resort to Harrowgate—and no better place could *they* find in Britain—must militate against it as a place of relaxation and amusement. It is by no means agreeable to those whose only disease is weariness, arising from confinement in great cities, or sedentary occupation, and who go to a watering-place chiefly for the sake of taking exercise in the open air, to be met at each turn by persons labouring under a class of diseases which, more than any other, disfigures the personal appearance, and of whom crowds are always to be found at Harrowgate: another drawback is the expensiveness of the hotels, which I found greater than at Bath or Cheltenham. On the whole, I much prefer the neighbouring town of Scarborough, as a pleasant watering-place.

HASTINGS and ST. LEONARD'S are on the eastern part

of the coast of Sussex. Hastings is bounded on three sides by lofty cliffs, which protect it from all winds except the south. It is said to be free from fogs, and to be less subject to rain than many other places on the coast. Hence it is well fitted for persons affected with pulmonary complaints. The sands at low-water afford an agreeable spot for riding or walking, and the sea-bathing is good; but to other persons the climate of Hastings in the summer months might be found relaxing, and the dry, bracing air of Brighton would be more beneficial.

The situation of St. Leonard's differs little from that of Hastings, from which it is distant only a mile, being somewhat less confined. The accommodations at St. Leonard's are much superior to those of Hastings.

ILFRACOMBE, on the north coast of Devon, possesses many superior conveniences for sea-bathing. There are several sheltered, retired coves, well adapted for this purpose, and abundance of machines.

LEAMINGTON, in the county of Warwick, was unknown as a watering-place before the end of the last century, when Dr. Lambe, in 1797, analysed the waters of its mineral spring, and on publishing the results, directed public attention to them, and they rapidly acquired a high reputation. The town has been, and still is, constantly increasing in size, to furnish accommodation to the multitudes who now resort to it. The springs are saline; and their general properties resemble those of Cheltenham, but contain a greater proportion of gaseous substances. They are applicable to the same class of dis-

eases as the waters of Cheltenham—whether one or the other ought to be employed depending rather upon idiosyncrasies, and peculiar circumstances, than upon the general nature of the disease.

The climate is moist and relaxing, the surrounding country is flat; and altogether Leamington does not enjoy a very high reputation for salubrity.

MALVERN.—Great Malvern in Worcestershire, situated on the Malvern Hills, is about twenty-two miles from Cheltenham, and is much frequented on account of several medicinal springs in the neighbourhood, which issue from the Malvern Hills, and are famous for the extreme purity of their waters, to which quality, combined with the fixed air which they contain, their efficacy is mainly attributable. They are principally used in scrofula, cutaneous eruptions, and nephritic complaints. The walks and rides on the hills are extremely fine; and the pure fresh air is invigorating and bracing.

MARGATE.—This favourite resort of the inhabitants of the metropolis is situated at the north-east corner of Kent; and has increased in extent with surprising rapidity since the communication between it and town, by means of steam-boats, has become so expeditious and cheap. It is a very lively, bustling place, and abounds in amusements: it is very well suited for spending a few days, and the trip may often prove of essential benefit to those who cannot spare much time from their usual avocations. There are several places used for sea-bathing; but by far the best is near the Clifton Baths, away from the town,—the place

most frequented, in the neighbourhood of the bathing-houses, owing to the number of bathers, and the circumstance that horses are employed for drawing the machines into the water, (which do not, as may readily be supposed, add to its purity,) being much inferior to the former; and I should as soon think of going to bathe in the Mechanics' Bath at Lambeth, as of going into the water at this spot. The warm-baths, however, are very good, and fitted up with great convenience. The walks and drives round Margate are agreeable, although, as usual on the sea-coast, there are few trees. The accommodations are comfortable and reasonable; and Margate is one of those places where there is little restraint, each one doing what seems agreeable to him, without much attention to conventional arrangements.

When last at Margate I visited the Sea-Bathing Infirmary—an excellent institution, which puts within the reach of the poorer class of patients a means of cure which, but for such charities, might otherwise be denied them. Several of my patients at the Dispensary have been sent there to complete their cures, and with the most beneficial effect. The institution is admirably conducted.

Invalids resorting to this place will have no difficulty in procuring excellent medical advice: among the best-known professional gentlemen are, Dr. Dennison, Dr. Price, Messrs. Hunter, Neame, Waddington, Sankey, and Hoffmans.

MATLOCK lies about twenty-two miles south-east of Buxton. It is a neat, clean, and comfortable village, and



is surrounded by scenes of great romantic beauty. Matlock water has a temperature of sixty-eight degrees, and is exceedingly pure, containing only a small quantity of neutral and earthy salts. It is principally used as a tepid bath. Since it has become so fashionable to visit the German spas, Matlock has been comparatively deserted.

PENZANCE is situated on the coast of Mount's Bay, about ten miles from the Land's End, and is much resorted to by invalids on account of its mild and equable temperature. I have been favoured with the following communication from the able resident physician, Dr. L. R. Wilson :—

“ It would be an error to suppose that persons resort here for the sake of the mineral waters, or exclusively for sea-bathing, the springs in the neighbourhood, with a few trifling exceptions, being unusually free from mineral impregnation, and the low and shelving coast offering but indifferent accommodation for sea-bathing, whilst the warm and other baths possess but few of the luxuries of the modern tepidarium. They are well enough in their way ; but the chief attraction, indeed the only one which can tempt the invalid to visit Penzance, is to be found in its climate, and that I believe is unequalled, in one or two very essential qualities, by any other part of England—I might almost say of Europe ; for in equability of temperature, Madeira is the only place which is said to be able to bear a comparison with the climate of Mount's Bay, which possesses, at the same time, a winter temperature much above the mean of most other places. We have had



a more severe winter this year than has been known for the last half century, yet I believe I am correct in stating, that the mercury has not descended below 25° Fahr., and that but for a very short time.”

PLYMOUTH.—This town is too well known to require that I should describe its situation. I have received a communication from Sir David Dickson, Inspector of Hospitals, who has kindly given me a full and satisfactory account of the climate, &c. of the town, from which I regret that my limits will permit me to make only the following extracts:—

“ Here, as elsewhere, great improvements (and further are still required), from draining the Marsh, in the construction of houses, streets, &c., have taken place; and, consequently, in the decrease of fevers and other diseases, especially intermittents; and the general salubrity proportionately increased.

“ Although it is generally admitted that it rains oftener at Plymouth, it has been mooted by some persons that the average quantity throughout the year is not greater than in other places; but in this supposition I cannot concur. In 1839 the summer was so extremely wet, that the whole number of rainy days registered was 227.

“ With respect to the influence of this climate generally upon health and disease, I have little to add, except that my opinion mainly coincides with the sentiments of Sir J. Clark,—indeed, if I remember, were expressed to him previously to their publication. I have no doubt of a soft and humid atmosphere being beneficial to delicate

or excitable constitutions predisposed to certain diseases, and especially those of the chest; and of its relaxing and soothing influence in dry, irritable, or inflammatory states of the air-passages, where there is deficient secretion, or a tendency to hæmoptysis, as well as in those habits which are prone to attacks of acute inflammation of the bronchial or other membranous structure, in colder and more exposed, or variable situations.

“The Richmond Baths, with machines for sea-bathing, &c. are at Devonport; and the Union Baths, fitted with every accommodation, at Plymouth; and within these walls (i. e. those of the Royal Hospital, Plymouth), we have, of course, the usual facilities for administering fresh and salt water, shower and vapour baths, which are generally to be found at large naval hospitals. In the neighbourhood of the Union Baths there is a saline spring, the Victoria Spa, of which I believe the faculty in Plymouth generally entertain a favourable opinion, and recommend it to their patients; and I am aware that several highly respectable naval professional gentlemen take it occasionally, and, as they conceive, with very beneficial effects. I enclose an analysis of the water, and also the highly favourable opinion of its efficacy, expressed in a note from Dr. Cookworthy, one of our principal physicians here :—

“ ‘ But with regard to the Victoria Spa, I never analysed its waters. I have relied on the authority of the eminent chemist, whose analysis Mr. Lockyer put into my hands when the spa was first opened to the public; and I have sent many patients there to drink the water, who have

derived marked and permanent advantage. Many cases of very serious functional derangement of the liver, stomach, and intestines, which have not yielded to purgatives, or to more gentle aperients, have been cured by the use of the waters of this spa. Costiveness and many of its attendant evils have been succeeded by health of body and serenity of mind, in not a few persons under my own observation.

“ ‘This spa has been examined in London by Prof. Faraday, and reported by him to be a very strong saline chalybeate, and by Prof. Daniel, who has analysed and reported its specific gravity to be, at 62°, 1013·3. In the pint imperial measure it contains—carbonic acid gas 8·100 cubic inches, and 151·66 grains of dry salts, consisting of—

	Grains.
Chloride of Sodium . . . . .	96·64
Muriate of Magnesia . . . . .	18·68
Muriate of Lime . . . . .	15·10
Sulphate of Soda . . . . .	9·55
Sulphate of Lime . . . . .	8·94
Carbonate of Lime . . . . .	2·06
Carbonate of Iron . . . . .	0·69
	<hr/>
	151·66' ”

RAMSGATE, situated on the Kentish coast, a few miles south of Margate. Compared with that town, it is a quiet, retired place, and on the whole more genteel. The pier is one of the finest in the kingdom, and forms a delightful promenade. The sea-bathing is excellent, the sands being

very broad and level. There are several fine buildings, and the accommodations are superior to those of Margate. Steam-boats now ply from London direct to Ramsgate, which adds somewhat to its accessibility. Its position is convenient for making excursions, many noted places being in its neighbourhood. A steam-boat goes between the town and Dover; and Deal and Pegwell Bay are at a short distance. The latter place is famous for its shrimps, and being only a mile to the west of the town, is much resorted to by the visitors, for whose accommodation there is a comfortable inn and other attractions. The shrimps caught in the Bay, which are very fine, are potted, and sent to all parts of the kingdom.

SANDGATE, between Folkstone and Hythe, on the coast of Kent, has of late years, owing to its fine, shingly beach, and gently shelving shore, which are remarkably well adapted for sea-bathing, risen into some notice; and good bathing-machines and boarding-houses have been established.

SCARBOROUGH.—This watering-place is on the coast of Yorkshire, some miles to the north of Flamborough Head, and 214 miles from London. It possesses the two-fold advantages arising from excellent facilities for sea-bathing, and from powerful mineral springs. Its situation is also beautiful, and objects of interest as well as scenes of picturesque beauty abound in its neighbourhood. There are two saline springs, called the North and South Wells, both of which contain also a small quantity of iron; but the chalybeate property is more perceptible in the South

Well. The operation of the water of the other spring is laxative. An elaborate analysis of the water has been made by Prof. R. Phillips, which confirms the opinion previously entertained of its value.

Scarborough is unequalled as a sea-bathing place. The bay is spacious, yet sheltered ; the beach is level, firm, and clear ; the water transparent ; the coast slopes so gradually that bathing may be indulged in without trouble or risk, at all times of the day and almost all seasons of the year ; but the most usual time for bathing, as well as for drinking the waters, is the morning.

Scarborough is as well adapted for those who are in search of healthful relaxation and amusement, as for invalids ; and it is now so easily reached from London, that it needs only to be better known to be visited by a much greater number of persons than at present. By means of the steam-boats plying between London and Hull, the latter place may be reached in four-and-twenty hours ; and it is to be remembered that many persons can stand a single night at sea who would be affected by a longer voyage. From Hull, Scarborough may be reached by land in a few hours. When I visited Scarborough I went in this manner : to Hull in the Vivid steamer, one of the best and most rapid of our coasting steam-vessels : the sleeping accommodations are excellent, much better than will often be found in larger boats. The Scotch steamers put off passengers at the town, but I should not advise any one to adopt this mode of conveyance, as when the sea is rough, the passage from the vessel to the shore, in a small boat, is



not free from danger. Those who prefer going by land may proceed to Hull by railroad.

The warm-baths at Scarborough are of a superior description; and the accommodations in the town are both good and remarkably reasonable.

SIDMOUTH is situated between Exmouth and Lyme Regis, in Devonshire, and is another of those places which have suddenly risen into notoriety as a sea-bathing station, it being said, that some years ago the visitors amounted to five or six hundred; and there are ample provisions for bathing. I cannot, however, say that I admire its situation: it is low and damp, and when I visited it last, it rained incessantly during the two days that I stayed there. It is the place where the late lamented Duke of Kent caught the cold which terminated fatally.

SOUTHAMPTON, equally suited for health and pleasure, occupies a kind of peninsula, the soil of which is a hard gravel; and as the buildings rise from the water with a gentle ascent, the streets are always clean and dry. The beauty of the neighbouring scenery, the interesting remains of antiquity which adorn the town, and the busy lively stir of the port, render Southampton a most delightful place to visit. It contains botanic spa-gardens, a picture-gallery and philosophical institution, and numerous places of amusement. The baths, both warm and cold, are spacious and commodious. The railroad renders Southampton readily accessible; and the Isle of Wight, and the coasts of Dorset and Devon, may be easily reached from it by means of steam-boats.

SOUTHEND, a town on the Essex coast, seems to be chiefly frequented by families from the other parts of the county, who certainly, by this plan, secure the pleasure of meeting their friends, but I doubt whether they do much to improve their health. Southend is situated in the low, marshy district of the county, and is liable to the unhealthy influences commonly owing to such a situation. The same circumstance renders it but ill fitted for bathing, as the tide sometimes runs out for a distance of two miles and a half, so that there can be no bathing at such times. Nevertheless, the lodgings are very comfortable, and the rides and walks in the vicinity are charming; and this, added to its proximity to town, give it some advantages to those who wish to go to the sea-coast for a short time as a relaxation; but I certainly should not recommend invalids to go thither. The Terrace, which is in a lofty situation, commands an extensive prospect.

SOUTHSEA, near Portsmouth, is a quiet, retired place, where there are sufficient accommodations for sea-bathing; and being in the neighbourhood of Portsmouth, Portsea, Gosport, and the Isle of Wight, there are many inducements to take short excursions, highly conducive to health. The air is pure and bracing, and the place altogether is well fitted for children, and persons of moderate means.

SWANSEA is situated on the coast of the British Channel, in Glamorganshire, and has long been a favourite resort for sea-bathing. It stands on a bay open towards the south, and sheltered in all other directions, which has by some writers been compared with the Bay of Naples; and

although it certainly cannot with justice compete with that celebrated bay in point of beauty, it is at least as well adapted for sea-bathing.

TENBY is in Pembrokeshire, about 250 miles from London. It is seated on a bold and romantic peninsula, and nearly surrounded by the sea. The sands are three miles long, adapted both for walking and riding, and at many points of which sea-bathing may conveniently be indulged in. The baths are said to be among the most complete in the kingdom; and the accommodations are sufficient.

TORQUAY, situated on the southern coast of Devonshire, lies in a retired cove looking into Torbay, and has become a well-frequented watering-place, being much resorted to by winter visitants on account of the mildness as well as salubrity of its air. My own opinion as to its fitness for this purpose coincides so entirely with that expressed by my friend Sir James Clark, in his work on Climate, that I have much pleasure in quoting his words:—

“The general character of the climate of the southwest coast is soft and humid. Torquay is certainly drier than the other places, and almost entirely free from fogs. This drier state of the atmosphere probably arises in part from the limestone rocks, which are confined to the neighbourhood of this place, and partly from its position between two streams, the Dart and the Teign, by which the rain is in some degree attracted. Torquay is in a great measure protected from north-east winds, the great evil of our spring climate. It is likewise well sheltered from the

north-west. This protection from winds extends also over a very considerable tract of country, abounding in every variety of landscape, in which the invalid may find at all times a sheltered spot for exercise either on foot or horse-back. The beauty of the country around Torquay, and the extent to which it is sheltered from all winds, is an advantage which it possesses over all the other places in this district, and one of great importance to the invalid. It possesses all the advantages of the south-western climate in the highest degree.

“The village of Tor, situated immediately behind, and on the high ground above Torquay, has been mentioned as a favourable residence for invalids. It is, however, considerably colder, and less protected from northerly winds than the latter place, and is also said to be damper. Just beyond Tor is the little vale of Upton, which affords one of the most eligible situations on this coast for establishing a Madeira village; being protected from southerly as well as northerly winds. Were houses built along the base of the hills which bound this little vale, and the intervening space entirely laid out in open pleasure-grounds for exercise, Upton would, I believe, form one of the most favourable winter residences for invalids in Devonshire.”

When at Torquay I noticed a remarkable difference in the temperature of different sides of the bay: on one side, in the sun, the heat was excessive; while on the other, in the shade, the feeling was one of actual cold.

Torquay possesses good hotels and lodging-houses in

abundance, a library, reading-room, and warm-baths; all combining to render it a desirable residence for invalids.

Fish is particularly abundant and cheap, and may be purchased from the Tor-bay fishermen, who are famous for their skill.

TUNBRIDGE-WELLS is in Kent, about thirty-six miles from London, in a charming and romantic country. The waters are the strongest chalybeates in England, and have been known from a very early period, those of Bath alone claiming a higher antiquity. They seem to have been first brought into notice by Dudley, Lord North, in the reign of James I., whose health was completely restored in three months by the use of them. From the small quantity of saline constituents in the water, it may be considered a pure chalybeate; and although it is inferior to many continental spas in the quantity of iron contained in it, yet its efficacy is by no means proportionally less; on the contrary, in the opinion of some writers it is for some classes of disease quite as valuable a remedy as the most powerful of the continental chalybeates. It acts strongly as a tonic; and aperients are often required to prevent constipation being occasioned by drinking it. The Tunbridge water is especially useful in that form of dyspepsia which arises from weakness of the stomach, in several scrofulous affections, in various female complaints, and in calculus.\*

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\* For a full account of the properties and uses of the waters of Tunbridge-Wells, vide Sir C. Scudamore's work on mineral waters.



The climate is very temperate: the air is dry and bracing; and it is perhaps one of the driest places in the kingdom, the soil at once absorbing the rain, so that the effects of a shower soon disappear. These circumstances shew that it must be admirably suited for rheumatic patients; and the heights in the vicinity, Mount Ephraim, Mount Sion, &c., on which the principal houses are built, from their elevation possess these recommendations in an eminent degree.

During my residence at Ightham Court Lodge, for nearly five years after my retirement from the hospital service, being wholly unemployed, and within a short ride of Tunbridge Wells, I frequently visited it, and at that time it was much more resorted to than at present.

I went to the Wells last summer, and drank the water; having recently visited most of the principal Continental Spas, I was struck with the great inferiority of the arrangements at the Wells as compared with those established abroad. For instance, at Wiesbaden, every person has a glass of his own, and the glass is not dipped into the well, but filled by means of a ladle, the well being railed off: at Tunbridge Wells, on the contrary, there is a small number of glasses for the use of the visitors generally, and the glasses are dipped into the water. I saw a boy dip a cup, which seemed to me to be not remarkably clean, into the well. Again, in place of the healthy, blooming young women who preside over most of the German Spas, and seem to be personifications of the salutary principles of the waters, one finds at Tunbridge unhealthy-looking old women,

whose appearance might induce the sceptic to doubt the virtues of the waters, as he might plausibly ask, Why do not these persons, who are so busy in dispensing the liquid, and in extolling its beneficial effects, try its powers on themselves, and thus furnish some proof of the truth of their praises?

It is advisable to begin drinking the waters with a small glass, and gradually to increase the quantity taken; as otherwise it will probably produce a severe headache and flushings in the face.

I brought away with me, last September, three bottles of the water of the Old Well, and the same quantity of the water of the spring in the garden belonging to the Sussex Hotel, the property of Lord Abergavenny, and on testing them, I found that the latter contained a greater portion of iron.

The accommodations at the place are very good; and the railroad which will soon be opened to Tunbridge will render it remarkably easy of access to the inhabitants of London.

THE ISLE OF WIGHT has deservedly gained the name of "the garden of England." The face of the country presents all the features of picturesque scenery—woods, rocks, hills, rivers, and vales. The climate is peculiarly favourable to vegetation, and equally propitious to health. Such is the genial mildness of the air, that myrtles, which love a soft marine exposure, grow here and flourish, without being injured by the severity of winter. These facts indicate that the island must be a desirable residence for

the invalid; and, in fact, many who go to Madeira would derive greater benefit from a sojourn upon our own beautiful Isle. Not every part, however, possesses these advantages: they belong more particularly to that district called Undercliff, on the south-east coast, which is about six miles long and half a mile broad. This district is bounded on the north by a ridge of hills, varying in height from 900 to 650 feet, which effectually defend it from northern winds; and as the direction of these hills is something in the form of a semicircle, Undercliff is protected also from south-westerly and north-westerly winds; in fact, the only winds to which it is fully exposed are those from the east and south-east.

The island is easily reached from Southampton and Portsmouth. Both at Cowes and Ryde there are excellent accommodations and sea-bathing; and the rides and walks in every part of the island are too well known for their picturesque beauty to require mention here.

YARMOUTH, at the mouth of the Yare, in the county of Norfolk, is about 122 miles from London, and is surrounded by water on every side except the north. The sea-bathing is very good, and there are plenty of machines on the beach. There is a bath-house, into which the sea-water is raised by means of a steam-engine, and it is said that considerable expense has been incurred to render the bath-house more convenient; I cannot say, however, that I approved of the bath which I took when there last, as there was no room for stretching the body in it—it was what is called a sitting-bath, and similar to those found at Calais. Nor

can I say much in favour of the accommodations at the hotels, as the air in every one which I visited was strongly impregnated with tobacco-smoke.

THE CHANNEL ISLANDS.—Jersey and Guernsey, the principal of these islands, may now be very easily reached from Southampton and Weymouth by steamers; and this excursion is a very pleasant one, especially if the tourist adopt the plan which I pursued, viz., going viâ Southampton, and returning by Weymouth. The air is very mild; there is good bathing, and the accommodations are very cheap.

Having now mentioned all the English watering-places which seem worthy of notice, I proceed upon the same plan to give an account of those on the Continent.

AIX-LA-CHAPELLE.—This town, situated in the Prussian province of the Rhine, has been famous from very remote antiquity for its hot sulphureous springs, and is still greatly frequented by invalids from this country and various parts of the Continent; but the waters are far more used for bathing than for drinking. There are six springs within the town, divided into the superior and inferior, there being three of each: the three superior springs are hotter than the others, the principal and hottest of them, called *Source de l'Empereur*, having a temperature of 130° Fahr.

The lower springs are not hotter than 112°, and their waters are less exciting than the others.

One of the constituents of the water of Aix-la-Chapelle

is sulphuretted hydrogen gas ; and it also contains soda in various forms.

Its action as a bath is very exciting, and is apt to cause determination of blood to the head and lungs, so that it is better calculated for cases characterised by atony or torpor of the system than for persons of full habit. When drunk it acts as an aperient and alterative ; it also operates on the skin, on the liver, and on the urinary organs.

The water of Aix-la-Chapelle is serviceable in obstinate rheumatism and gout ; in long-standing cutaneous affections ; in paralysis not arising from disease of the brain, hypochondria, abnormal mucous discharges, &c.

Aix-la-Chapelle is about a day's journey from Brussels by the road. On my first visit to it I went by Maestricht over the Bridge of Boats, and not arriving till late at night, was glad to get a bed, though in a room in which some persons had been smoking, so that the air was powerfully perfumed with tobacco. Next day, however, I made myself amends by taking up my quarters at the hotel I originally intended, namely L'Aigle Noir, by far the finest and largest in the place, where I had the good fortune to secure a large airy room commanding an extensive prospect, and slept in the same bed, I was told, as was occupied by the Duke of Wellington when in the city attending the Congress. The last time I visited the town I went from Brussels to Liege by a railroad, which I understand has since been finished to Cologne ; thus rendering Aix-la-Chapelle much more accessible than before.

The principal seasons for using the waters of Aix-la-



Chapelle are before and after the season at Spa—that is, during May and June, August and September.

ALTWASSER.—This village, in Silesia, contains some acidulous mineral springs, which have been considerably frequented during the present century. The water is chiefly remarkable for the large quantity of carbonic acid gas; and a minute proportion of iron places it among the number of tonic waters, and renders it useful in some cases of dyspepsia, arising from debility of the stomach, and in nervous affections.

BADEN.—I regret that I did not visit this place when at Vienna, from which city it is a very short distance, as I afterwards learned from some friends who had been there that it was worth going to. It is a favourite resort of the inhabitants of Vienna in the summer months, not only for the purpose of drinking and bathing in its sulphureous waters, but of enjoying the delightful scenery in the neighbourhood.

The springs are numerous, and of various temperatures, ranging from about  $27^{\circ}$  to  $30^{\circ}$  Reaumur; but chemically considered, they are nearly identical, and are of the strong saline sulphureous class.

They are of service in the same kind of cases as those for which the waters of Aix-la-Chapelle are recommended, but are not so powerful in their operation; and like them they are more generally used externally than internally.

BADEN-BADEN is situated near the eastern bank of the Rhine, a little to the north of Strasburg, in a pleasant fertile valley, surrounded on all sides by lofty hills,

which shelter it from the inclement winds. There are many beautiful scenes in the vicinity, and the air is mild and temperate. The town is built on the slope of a hill, and has of late years been considerably enlarged. The permanent population is about 4000, and there are accommodations for about an equal number of visitors. There are also several fine buildings for the convenience and amusement of visitors, similar to those found at most German Spas, such as the Conversation-haus, the theatre, library, &c.

Baden was known to the Romans for its mineral springs, and received from them the name of Civitas Aurelia Aquensis; its waters continued to be made use of by those who lived in its vicinity, although little known to the rest of Europe until about the end of the last century, when it attracted more attention, and has since become more and more widely known and more extensively resorted to, having, in fact, attained the enviable distinction, whether well or ill deserved, of being a *fashionable* watering-place.

There is a considerable number of springs, all rising within a short distance of one another, and differing but slightly either in temperature or composition: the former varying from  $54^{\circ}$  to  $44^{\circ}$  Reaumur. The hottest and most used is called the Ursprung. The waters are employed both for drinking and bathing in cases of disorders of the digestive organs, and the maladies connected with them, such as gout and rheumatism; also in some cutaneous diseases, and in derangements of the urinary functions.

They are, however, to be avoided in cases of plethora, or where there is undue vascular excitement, and in some other diseases.

The hotels are excellent, and the accommodations for visitors are of a very superior description. Perhaps the best hotel is “L’Hôtel d’Angleterre.”

When I was last at Baden, I saw Drs. Hutton and Pitschaft, two of the resident physicians; the latter kindly presented me with his work on Baden and its waters, in which he expatiates with poetical enthusiasm on the advantages to be derived from a residence at Baden, and from the employment of its waters. From this work I take the following passage relative to the climate of the place:—

“The attributes of this climate are a mild and warm air, yet not too dry, which is the proper balm for the animal and human organs of respiration; and thus it may often happen that the air and water of this place may dispute with each other as to which is most beneficial. But they readily operate together in producing the most happy results.

“The convalescent will not easily find another place better adapted to restore him to vigorous health and joyful life: Baden’s atmosphere is a real source of nutrition (*pabulum vitæ*) to those who suffer from weak lungs.

“Whoever suffers from a difficult respiration, or is afflicted with catarrhs, convulsive coughs, or asthmatic complaints, will experience in this mild and soft atmosphere much relief.

“ They, also, who suffer from melancholy and hypochondriasis, where can they find a better place to feel a mitigation of their imagined or real woes than in this mild and balsamic air?”

The Doctor informed me that an artificial Carlsbad water is prepared at Baden, under the direction of Dr. Kölreuter, by adding to the hot mineral water at a temperature of from 50° to 54° Reaumur,

	Grains.
Carbonate of soda . . . . .	17
Carbonate of iron . . . . .	$\frac{1}{10}$
Carbonate of lime . . . . .	2
Sulphuret of lime . . . . .	26
Muriate of soda . . . . .	17
Silica . . . . .	$\frac{1}{3}$

It is a very common practice at Baden to use hot baths, and this is done with too little caution or discrimination. Dr. Granville says truly: “ The operation of bathing in water endowed with much power from heat and other circumstances is not to be viewed lightly: much mischief has arisen, nay, fatal results have followed, from its indiscriminate adoption. A rich merchant, who but a few hours before had been noticed on the public promenade after dinner, on the day after our arrival, was found dead in a bath at 8 o’clock of the same evening. A lady was pointed out to me, who had lost the use of her limbs after using three hot baths.” My friend, Dr. James Johnson, in his “ Pilgrimages to the Spas,” after quoting these words, adds: “ The injurious effects of hot baths, even of com-

mon water, are daily witnessed at home ; and these agents are still more powerful abroad."

The efficacy of the Baden waters is not so highly thought of now as it was a few years ago ; the English do not flock thither quite so much as they used to do ; and those who still visit it, seem to go in search rather of pleasure than of health. Dr. J. Johnson is not far from the truth, when he sums up the characteristics of Baden in the following words: "Baden is, in fine, neither more nor less than a fashionable place of pleasure, dissipation, vice, and gambling ; abounding in hot baths, hells, hotels, scandal, and good scenery."

BAREGES, BIGORRE, and LUCHON, are the three most frequented watering-places in the south of France ; the latter is in the department of Haute Garonne, and the two former in that of Haute Pyrenees, which abounds in mineral springs, especially those of the sulphureous kind, to which they nearly all belong.

BAREGES is said to have been known to the Romans for its mineral waters, who erected baths near the place. In modern times it has acquired fame, and become much frequented since the time of Madame de Maintenon, who went thither. There are six springs, the temperature of which varies from 28° to 44° Fahr. The impregnation of sulphur is more perceptible to the smell than to the taste ; and the water contains a large proportion of soda. Its efficacy in the cure of wounds is very great. Louis XV. established a military hospital here, at which vast numbers of soldiers, officers as well as privates, have been cured. It



is also highly recommended as a means of allaying pains of long duration, arising from rheumatism and old wounds; in strumous diseases, jaundice, &c. &c.

The water is used both for drinking and bathing: the season lasts from June to September. The place, being nearly surrounded by lofty mountains, is very hot in summer, and uninhabitable in winter; so that none but invalids are to be found there, as there is little to induce any one to go for pleasure.

BIGORRE, or BAGNERES DE BIGORRE.—This town is in one of the most beautiful situations in the department; it is seated on the river Adour, at the foot of Mount Olivet. The salubrity of the air, its admirable position, and the number and excellence of the mineral springs, render Bigorre perhaps the most charming watering-place in France; and it is very much resorted to, upwards of 8000 visitors having, it is said, been here at one time.

The springs are of three kinds, saline, chalybeate, and sulphureous: the first are the most numerous, and those chiefly used. They are warm springs, the temperature varying from  $27^{\circ}$  to  $35^{\circ}$  Reaumur. Their action is aperient, and some of them diuretic or diaphoretic. They are especially recommended to hypochondriacal and melancholic persons, and to those engaged in literary and sedentary occupations.

The chalybeate springs have nothing to distinguish them from others of the same class; but it is a great advantage, and one almost peculiar to Bigorre, to possess so great a variety of mineral waters, which may frequently

be combined with one another, or taken alternately, with the greatest benefit. All accounts concur in stating, that the accommodations for board and lodging at Bigorre are excellent, and very moderate in price.

LUCHON is about two leagues from the frontier of Spain, and possessed some warm springs known to the Romans, and long celebrated for their virtues. The situation of the town is picturesque and romantic, and there is great variety of scenery in the neighbourhood. The town itself is handsome and clean, and affords accommodations for upwards of 1500 visitors.

There are eight warm sulphur-springs, of temperatures varying from 22° to 58° Reaumur. They are used both internally and externally, and their general effects and uses are similar to those of the waters of Bareges.

Dr. Weilman, whom I met at Leipsic, expressed his opinion to me, that these waters of the Pyrenees are far more efficacious in some classes of diseases than any of the mineral waters of Germany; and they are besides more varied in their properties. He considers that they are likely to become as much frequented as any of the German Spas; and undoubtedly, if fashion once favours them, they will, if all accounts be true, easily bear away the belle. I have not yet had an opportunity of visiting them myself, but I think of doing so next summer, when I will prepare a full account of them for the information of the public.

BOULOGNE.—This well-known town on the French coast is greatly frequented by the English for sea-bathing, and on account of the numerous means of amusement

which the place affords. The sands are excellent, and present every inducement and facility for bathing, which is further promoted by an abundance of machines. Boulogne is said to have been the first place in France at which hot salt-water baths were established: these baths are formed of polished stone and marble. The accommodations are very good and cheap; and objects of curiosity and amusement are plentiful in the town and its vicinity; the Museum is an interesting collection; and the celebrated Napoleon's Column is a noble feature in the scenery. Boulogne may be reached from London in twelve hours by steamers from the Tower.

CAMOINS.—The sulphur-springs of Camoins are situated in a beautiful valley about six miles distant from Marseilles. They first attracted attention in 1811, when they were analysed by order of the minister of the interior, and found to contain sulphate of lime, the carbonates of lime and magnesia, and sulphuretted hydrogen. Both the savour and smell of the waters are strongly characteristic of the last-named ingredient. A more recent and more minute investigation (in 1838, 1839) has demonstrated the presence of carbonic acid gas and of nitrogen, as also of the sulphuret and chloruret of calcium. The waters are administered internally, and used externally in cutaneous affections, scrofula, and in obstructions of the abdominal viscera. When taken internally, the dose to begin with is two glassfuls, gradually increased to ten or twelve, taken in the four-and-twenty hours. Externally, they are used either in the form of douche or of an ordinary bath, the

temperature of which should be from  $28^{\circ}$  to  $30^{\circ}$  Reaumur. The ordinary duration of the bath is about an hour; but at the beginning, the excitement caused by it may be so great as to prevent the patient remaining in longer than half, or even a quarter that time. Many cases of cures are recorded, when the waters have been taken internally only.

CARLSBAD is in Bohemia, south of Dresden, and west of Prague. It is situated in a narrow valley, and in a very romantic country. It is one of the most frequented watering-places in Europe, its waters being among the most powerful saline aperient springs known.

There are several springs, which differ from one another chiefly in temperature and the proportion of solid substances contained in them. The Sprudel is the most frequented spring, being the most powerful and the hottest, having a temperature of  $59^{\circ}$  Reaumur. It contains a great quantity of gaseous constituents, and its action is very stimulating and penetrating. The water is projected from the earth with great force, forming a *jet-d'eau* about five feet high.

The springs vary considerably in their mode of action, and are adapted for various classes of disease, but are most efficacious in those arising from affections of the mucous membranes and absorbent system, and in chronic gout connected with disorder of the stomach and liver. A long list of other diseases is given in the works on mineral waters in which these are said to be useful.

The waters of Carlsbad are not much used for bathing ;

and it struck me that they closely resembled the Cheltenham waters in their general effects. The accommodations at Carlsbad are good, but not particularly reasonable.

DIEPPE is in the department of Seine Inférieure, at the mouth of the river Arques. It is much frequented as a watering-place; and on the beach there is a modern building for the accommodation of bathers. On the south bank of the river there is a promenade about half a mile long, called the Course. Dieppe is nearly due south of Brighton, from which it is easily reached by steamers. The passage across is sometimes very rough, as it was on the occasion of my visit to Dieppe; but this circumstance need deter no one if he is under the conduct of so experienced and skilful a seaman as Capt. Cheeseman, who commanded the boat in which I went.

Dieppe certainly deserves to be called a sea-bathing place—nowhere did I ever see so much bathing as there; and there are several customs observed relative to it, which seem strange to an Englishman, although they are of course thought nothing of at Dieppe. The gentlemen wear caleçons, or drawers, of various colours, but the ladies are clothed in complete bathing costumes, and are bathed by persons whose business it is to do so, at a short distance from the gentlemen's bathing-place. The ladies appear to take great delight in the exercise, and plunge and jump about in the water with great activity: some of them, I am told, have even learnt to swim. Not a few of them also appear to be very fond of the douche bath: it is not unusual for a lady to have nine or ten pailsful of water poured



upon her head on the beach. The lodgings and accommodations are very good: the principal hotel is the Clarence, so named from having once been honoured by a visit from his late majesty when Duke of Clarence, accompanied by the duchess, now the Queen Dowager.

The surrounding country is very interesting, particularly the village and ruins of Arc, which I went to see, and was much gratified with them.

EMS.—This village is near Coblenz, in the territory of Nassau, not far from the Rhine; and although it consists of only a long range of houses, yet, as they are all devoted to public accommodation, as many as 2000 visitors can be received at one time.

The waters of Ems are of the alkaline kind, and have been known from early times. The two principal springs are the Kesselbrunnen and the Kranchenbrunnen: the temperature of the former is 120° Fah. ; of the latter, 85°.

The action of these waters is sedative: they increase the secretions of the skin and kidneys, but exercise no such effect upon the organs of digestion.

They are recommended in incipient phthisis, in nervous diseases, in scrofula, swellings of the joints, and some diseases peculiar to females.

When at Ems, I had the good fortune to become acquainted with Baron von Weigel, president of the Royal Council of Health at Stockholm, and Professor Otto of Breslau, physician to the King of Prussia, who paid me many polite attentions, and were kind enough to point out the objects worthy of notice at Ems.

A favourite amusement at this place is riding on horse-back, the horses being very excellent. This circumstance, and the nature of the scenery, reminded me strongly of Malvern, where the same amusement is common.

FRANZENBRUNN, or FRANZENBAD, is situated in Bohemia, a few miles from Carlsbad, and about a league from the river Eger (a branch of the Elbe). It contains several springs, possessing properties of various kinds, but all belonging either to the chalybeate class or to that of the saline aperient. The oldest and most celebrated spring is called the Franzquelle, which is said to have been known for eight hundred years, and its waters are exported in great quantities. It is a chalybeate, and abounds in carbonic acid gas, with which, indeed, the earth all round Franzenbad is completely saturated. It is chiefly employed internally as a tonic, in cases where pure chalybeates would be inadmissible from their constipating effects; and for such purposes it enjoys a very high reputation. Hufeland says, that "he has witnessed many remarkable cures effected by its waters in cases of difficult and painful digestion, constipation, and gouty affections."

The cold Sprudel differs from the former chiefly in being more aperient.

The Louisenquelle is the most copious of the springs at this place, discharging about 27,000 cubic inches per minute. It is used for bathing only, and is very slightly chalybeate, but abounds, like the other two, in carbonic acid gas.

The saline spring is called the Salzquelle, which is at

some distance from the village. Its principal constituents are soda and carbonic acid gas, iron being scarcely perceptible in it. It is better adapted than the chalybeate springs for persons inclined to plethora or nervous irritability, and according to the opinion of Hufeland, it promotes the *secretions*, rather than the evacuations. Its temperature is low, never exceeding 9° Reaumur.

Franzenbad is in an open country, without much pretensions to beauty or variety of scenery. It is built on piles, on account of the boggy nature of the ground. It is only since about the last twenty years that Franzenbad has been much resorted to, and most of the houses are modern.

At this place there are baths of a novel kind—gas and mud baths. It has been already mentioned that carbonic acid gas abounds in the neighbourhood, and this gas is prevented from escaping when it issues from the earth, being collected in such a way as to be available for the purposes of a bath. The effect of the gas so employed is to stimulate the skin and nerves on the surface; and the baths are used chiefly in cases of paralysis attended with stiffness and weakness.

I am indebted to Dr. James Johnson's work on the Spas for the following account of the mud-baths:—

“I have alluded to the plentiful supply of bog which the immediate vicinity of Franzenbad offers to the mud-bathers. This earth contains the following materials:—viz., the fibres of plants not decomposed, and whose organisation is recognisable; matters soluble in water,

such as vegetable substances rich in carbon, and of a yellow colour, sulphate of lime, sulphate of magnesia, sulphate of iron, alum, bituminous extractive matter, oxide of iron, fine sand.

“The peat-bog is carried to the neighbourhood of the baths, and there allowed to dry to some extent; it is then sifted and separated from the woody fibres and coarser materials, when it is mixed with the mineral water of the Louisenquelle into the consistence of a very soft poultice. In this state it is heated by steam to a temperature varying from 80° to 100° Fahr., when it is ready for the bather, being worked up by means of wooden instruments and the hands into a complete black amalgam. I took the mud-bath here, at Marienbad, and Carlsbad, and do not regret the experiments. I confess, that at first I felt some repugnance, not fear, in plunging into the black peat-poultice; but when up to the chin (temperature 97°) I felt more comfortable than I had ever done even in the baths of Schlangenbad, Wildbad, or Pfeffers. The material is so dense, that you are some time in sinking to the bottom of the bath; and I could not help fancying myself in Mahomet's tomb, suspended between heaven and earth, but possessing consciousness, which I fear the prophet did not enjoy. There was one drawback on the mud-bath, or peat-poultice. We cannot roll about, like a porpoise or whale, as in the water-bath, without considerable effort, so dense is the medium in which we lie; but I found that I could use friction to all parts of the body with great ease, in consequence of the unctuous and lubricating quality of



the bath. After twenty minutes' immersion I felt an excitement of the surface, quite different from that of the common mineral warm-baths—even of those of Wisbaden, Kissengen, or Schwalbach—attended, as I fancied, by elevation of spirits.

“Whilst I was thus philosophising, like Diogenes, in my tub, the thought came across my mind that I would have a dive in the sable mixture. I knew that the sun and winds had so tanned my complexion that it would not suffer by immersion; and if my hair should get dyed black, the change would certainly be for the better. I therefore disappeared like an eel in the mud; but, on emerging from the bog, I thought I should have been suffocated before I cleared my face from the tenacious cataplasm. I had now been nearly half an hour in the Schlammbad, and prepared to quit, as the mixture was fast cooling down, and the heat could not be kept up as in the water-bath. On raising myself slowly and perpendicularly, with at least twenty pounds of mud on my surface, I caught a full-length portrait of myself in the glass, and I think the view would have sickened Narcissus of self-contemplation for ever! I was really shocked at my sudden metamorphosis into the Æthiopian, and began to doubt whether I should ever ‘change my hue’ again. The warm water-bath was close at hand, but I had the presence of mind not to jump into it at once, as I should, in that case, render it a black wash-tub; but by clearing away with both hands some sixteen or eighteen pounds of peat-varnish from my body, I rolled into the clear fluid, where



it required half an hour's rubbing and scrubbing to purify myself from the 'Bain de Boue.' Both on this, and on subsequent occasions, at Marienbad, Carlsbad, and Teplitz, I experienced a degree of exhilaration, strength, and elasticity, from the mud-bath, which I had never done from any other. The iron in these baths, instead of corrugating the skin, as I expected, imparts to it a glossy or satiny feel and softness quite peculiar, and much more in degree than the waters of Schlangenbad.

“In general these baths produce a pricking sensation, and sometimes an eruption on the skin, an effect which I did not experience. They are therefore much used in old and obstinate cutaneous complaints, as well as in glandular swellings, sequences of gout, rheumatism, &c. They are very exciting to the nervous system, and should not be used where there are any local inflammations, or much general excitability of the constitution. They do not lose their heat so rapidly as the water-baths, and consequently they maintain the volatile and penetrating principles longer than the latter. They are much employed in paralysis, chronic ulcers, and cutaneous affections.”

GASTEIN.—This village is situated to the south of Salzburg, on the Noric Alps, about 3000 feet above the level of the sea, in a highly romantic country, and in a very retired situation. Being surrounded by lofty mountains, the tops of which are constantly covered with snow, the temperature in summer is very cool, and it is in consequence much resorted to as a summer residence, but the accommodations are limited. The springs of this place are

of great antiquity ; and although their waters contain but a very small proportion of mineral substances, they are said to be rather powerful in their operation ; chiefly in excitation of the vascular system and skin. The waters are said to be useful in gout, rheumatism, nervous complaints, and general derangement of the organic functions. The water is used both internally and externally. In respect to the baths Dr. Granville says—

“ Supposing people to submit to the general practice of the place, of bathing in public baths, 172 persons may bathe at one and the same time. One very great inconvenience in the baths at Gastein, is the length of time required to fill them. This has induced a very unsatisfactory fashion, of seldom emptying the cisterns in the course of the day, after they have once been filled over night. Few persons, therefore, get a really clean bath. A pure bath falls only to the lot of him who first comes.”

GEILNAU.—A village in Nassau, near the Lahn, where there are mineral waters analogous to those of Seltz, but containing more carbonic acid gas and subcarbonate of soda. Vauquelin, who analysed them in 1820, found muriate and subcarbonate of soda, the carbonates of lime and magnesia, oxide of iron, silica, and a large proportion of carbonic acid gas. The water is clear, sparkling, and effervescing. It is considered to be of service in cases of abdominal obstructions, indigestion, and in nephritic complaints. The waters are largely exported.

GRAEFENBURG.—This place, the name of which had never until within these few years been heard of beyond

its own immediate neighbourhood, has lately acquired an European reputation through the labours of its “wonderful” denizen Mr. Priessnitz; and I cannot pass it by, therefore, without a few words relative to it. I quote from Mr. Claridge’s work on “Hydropathy:”—

“Gräfenberg is a colony of about twenty houses, placed about half way up one of the mountains of the Sudates, forming part of the small town of Freiwaldau, in Silesia, Austria, 260 miles from Berlin, 200 from Dresden, and 175 from Vienna.

“The establishment at Gräfenberg is most agreeably placed on a long slope, which extends from the valley to the top of the mountain. The views from it are magnificent, particularly in one direction, in which the plains of Prussia are seen in the distance. The highest houses chiefly belong to Mr. Priessnitz. The principal one is a large irregular building in which he resides himself, and where there is a dining-room fit for the accommodation of 500 or 600 persons, with numerous bed-rooms for patients, and an enormous bath, furnished, like the others, from a cold spring. The chief establishment at Gräfenberg is badly arranged, there being always a disagreeable smell in it, arising, first, from the cows, which, instead of being confined in sheds, as with us, are kept under the house; secondly, from the public conveniences, which are on the staircases; and, thirdly, from the kitchen, which is under the saloon, into which the dinner is introduced through a trap-door, by means of pulleys. The simplicity of the apartments is in perfect keeping with the kind of life which

is led at Gräfenberg; there is nothing in them which it is possible to dispense with. A bedstead with a straw mattress, a chest of deal drawers, a table, two chairs, a wash-hand basin, a decanter and glass, comprise the whole furniture of the room, which is similar to a soldier's chamber in a barrack. Mr. Priessnitz considers a want of comfort in the apartments an advantage, as it induces people to be a great deal out of doors, breathing the pure bracing vital air of the mountains; and says that no persons ought to be in their room, except for the purposes of the cure or for sleeping: reading, writing, and thinking, are obstacles to the recovery of health.

“In Gräfenberg all is in movement by this hour, 4 A.M., and by 6 o'clock the promenades exhibit their motley groups; and it must be wretched weather indeed that will keep the invalids in their cheerless rooms. This accustoms people to atmospheric changes; and no where on earth can people accustomed to a civilised mode of living be found, who set weather at such defiance as these invalids. This arises from their confidence in the power of water, and Priessnitz's consummate talent in immediately putting matters right, if any cold should result from the exposure; but this is very rarely the case when people are accustomed to the use of cold water.

“The mode of living at Gräfenberg must strike every visitor with astonishment, when he learns that two-thirds of the patients, previous to going there, had been limited in the quantity and quality of their food, and that numbers of them had tasted little else than liquids for long and for



short periods, according to the treatment they had been subjected to. At breakfast the table is supplied with brown bread, and most excellent milk and butter from Mr. Priessnitz's dairy: the same may be said of supper. At dinner there is soup, and beef boiled in it—a famous dish with Germans. After this, one occasionally sees pork, veal, beef, ducks, geese, potatoes, sour-croute, gerkins, cucumbers, pastry, &c.: these are named to shew the nature of the things which invalids are allowed to partake of; not that they all appear at one time, for in general it is complained that, though plentiful, the food is coarse. Mr. Priessnitz, when any allusion is made to this subject, says, ‘that the cure would progress quicker if the table were much worse served than at present.’ He has no objection to people eating heartily, but he insists on it that the food ought not to partake of those solid nourishing qualities which we are accustomed to in England.

“Fortune and fame will be the reward of any of our students who may go to Gräfenberg, and study the proceedings of this extraordinary man. To do this effectually they must be possessed of patience, as it can only be studied on the spot; nothing but danger would result from acting on the dicta of books, as will be shewn by the following case whilst the author was at Gräfenberg:—A person who had recently lost his wife and two children was attacked with brain fever. Mr. Priessnitz ordered him a tepid bath, in which he sat, and was rubbed by two men, who were occasionally changed. The man became so deranged that it was with difficulty he could be kept in the bath:



in ordinary cases this disease succumbs to the treatment in two or three hours; but the patient in this case became speechless at the end of this time. Mr. Priessnitz, with that coolness which is so leading a feature of his character, said, 'Keep on until he either talks much or goes to sleep.' The latter the man at last did, but not until he had been in the bath for nine hours and a half; that is to say, they commenced at one o'clock in the day, and the patient fell asleep from exhaustion at half-past ten at night: he was then put to bed, and next day the fever had left him; and though weak, he was able to walk about.\*

"The greatest part of the food given is served cold, Priessnitz being convinced that hot things weaken the digestive organs: he even forbids soup to those who have bad digestions. The only thing patients drink during dinner is cold water. I cannot see on what grounds some would prohibit it whilst eating, when no one suffers from its use, and nature seems to desire it.

"If you wish to be assured that cold food and water

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\* One thing impressed me very strongly with reference to German practice—namely, the apparent want of consideration for the fears and feelings of their patients, which even success can hardly justify. When at Vienna, I saw M. Dieffenbach, of Berlin, operate in three cases of strabismus—in one of which I assisted him, in the presence of Dr. Zink and Dr. Hassinger. What struck me as indicating almost a disregard for the natural apprehensions of a patient about to undergo a surgical operation, was, the air of indifference with which he took off his coat, and set about his task. When visiting the hospital at Prague, a man came to have his

are never hurtful, go to Gräfenberg, and you will see all the inhabitants satisfy their thirst with pure cold water, without any accidents ever resulting from the practice. The society will be found more cheerful than elsewhere; the invalids have marvellous digestions and are never sleepy after dinner. The custom of drinking a great deal of cold water whilst eating, is very good for persons subject to congestions of blood to the head.

“Indian spices, such as pepper, cloves, cinnamon, and others of the same kind, are injurious even to those enjoying good health, on account of their stimulating properties; they are therefore prohibited during the cure.

“Bread, milk, and butter, compose both breakfast and supper. If you wish for white bread, it must be bought extra. No where is the milk and butter of a better quality. In winter, potatoes are added to the supper, but are seldom eaten—they interrupt digestion and sleep.

“The question now arises, what complaints are curable by Mr. Priessnitz’s treatment? On this subject I shall quote the opinion of Rausse, author of an excellent work

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tooth drawn; the surgeon, without lancing the gum, or putting a compress round the instrument,—as used formerly to be done,—merely told him to sit down, put his head between his legs, and wrenched out the tooth as you would a nail from a board! There is no lack in this country of bold imitators of this style of practice: few of them, however, are as successful as their prototypes in Germany: witness the results of the operations recently performed on the ear and throat.

on hydropathy, which has passed through several editions. He says, ‘ It is impossible for a man to die of an acute disease who has sufficient strength left him to allow of water producing its reaction, and who, from the commencement of his disease, is treated by hydropathy. Every one who is not acquainted with the water-cure will naturally doubt its wonderful power; and every doctor, when he reflects upon the number of patients labouring under acute diseases, who have perished under his hands, will, no doubt, laugh loudly enough at the new water-system: nevertheless,’ says this author, ‘ I am not disposed to advance a doctrine which may be put down; and I therefore here publicly make known, that I am ready by deeds, as well as with words, to prove all that I have stated as to the healing power of water.’ Rausse further adds, that to state what diseases are curable, would be a tedious occupation, and therefore he sums up in a few words those that are not—viz., all chronic diseases of the lungs; all organic defects, and all diseases in people whose muscles and sinews are past all power of action, and from whom the vital principle has passed beyond recovery; and adds, ‘ the cure of all acute diseases to Priessnitz is mere child’s play; and in no instance of nervous fevers or inflammations, in any stage, was he ever known to lose a patient; and what is still more worthy of remark, a radical cure is effected in a few days, without the subsequent debility which would result from any other treatment. Hydropathy completely supersedes the dreadful necessity of cutting men’s flesh, or amputating their limbs. In chronic diseases, it may es-

pecially be remarked, that all persons suffering from the effect of mercury, in its manifold and dangerous form will derive instantaneous benefit, and, in the end, perfect health, from Priessnitz's water-cure. I can affirm that half Priessnitz's patients are under the influence of this pernicious drug. Then follow those obstinate complaints, gout, rheumatism, hæmorrhoids, obstruction of the bowels, and their concomitant ills ; also scrofula, syphilis,—in fact, all diseases known by the term chronic, or connected with the nerves."

Here, then, if these statements are to be believed, there has been brought into actual and successful operation, system which must give the death-blow to all mineral watering-places, thermal baths, &c. &c., to say nothing of the ruin inflicted on medical men of all ranks, especially on apothecaries and druggists.\* Unfortunately for mankind at large, but fortunately for the interests of the last-named classes, there is evidently great exaggeration in the views entertained by the admirers of hydropathy, who seem to attribute far too great a share of what success has

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\* Elsewhere we are told, that a medical man from Ghent, after witnessing what was going on at Gräfenberg for six weeks, said : " Water will cure all diseases which medicine can cure, and *this* when they are in a much more advanced stage than that at which drugs can act. I have no doubt that the time will come when medicine will be as completely a dead letter as the Latin is now a dead language, and that, eventually, people, when speaking of drugs, will refer to them as they do to other objects which time has rendered altogether obsolete."



attended Priessnitz to the use of cold water, and too little to the strict regimen, air, and out-door exercise, prescribed by him, which, as I have already observed, must no doubt be productive of the best effects in a very large proportion of the cases which come under his care.

The following anecdote, related by Dr. Paris, furnishes a good illustration of what may be done by travelling, change of scene, &c.; and the case is precisely such a one as would have been cited in honour of Preissnitz, had the patient lived in our times and paid a visit to Gräfenberg:

Dr. Sydenham having long attended a gentleman of fortune with little or no advantage, frankly avowed his inability to render him any further service, adding, at the same time, that there was a physician of the name of Robinson, at Inverness, who had distinguished himself by the performance of many remarkable cures of the same complaint as that under which his patient laboured, and expressing a conviction that, if he applied to him, he would come back cured. This was too encouraging a proposal to be rejected; the gentleman received from Sydenham a statement of his case, with the necessary letter of introduction, and proceeded without delay to the place in question. On arriving at Inverness, and anxiously inquiring for the residence of Dr. Robinson, he found, to his utter dismay and disappointment, that there was no physician of that name, nor ever had been in the memory of any person there. The gentleman returned, vowing eternal hostility to the peace of Sydenham; and on his arrival at home, instantly expressed his indignation



at having been sent on a journey of so many hundred miles for no purpose. "Well," replies Sydenham, "are you better in health?" "Yes, I am now quite well; but no thanks to you." "No;" says Sydenham, "but you may thank Dr. Robinson for curing you. I wished to send you a journey with some object of interest in view; I knew it would be of service to you; in going you had Dr. Robinson and his wonderful cures in contemplation; and in returning you were equally engaged in thinking of scolding me."

KISSINGEN.—In reference to this fashionable and much-frequented watering-place, I cannot do better than transcribe the account given of it by an able resident physician, Dr. Balling, in a small work just published on the subject.

"Kissingen is situated on the banks of the river Saal, in the province of Lower Franconia, now forming part of the kingdom of Bavaria, and has long been known for the variety and efficacy of its mineral waters, the reputation of which has, within the last twenty years, extended to other quarters of the globe. Few places are more favoured in point of locality than Kissingen; it is situated in the middle of Germany, at about equal distances from Wiirtzburg, Meiningen, Fulda, and Bamberg. The scenery around the town is extremely varied. Surrounded by hills, the base of which is covered with vines, and the summits with woods, presenting the most luxuriant foliage, the valley of the Saal is one of the most beautiful and romantic

in Germany. The climate, too, is mild and temperate, being entirely sheltered both from the north and east. The atmosphere is pure and bracing, entirely free from damp. The accommodations at Kissingen have improved as the reputation of the waters has increased. The same may be said of the arrangements for invalids. Large and commodious houses have lately been built, as remarkable for their architectural beauty as for their internal comfort. Many of these contain baths, and are surrounded by gardens; they are let entire, or in apartments, as may be desired.

“ There are five mineral springs at Kissingen, which have been employed as remedial agents for many years, with the most satisfactory results :—

“ 1. The Ragozzi, discovered in the year 1737, in the ancient bed of the river Saal.

“ 2. The Pandur, known for many centuries, principally used for bathing.

“ 3. The Soolensprudel, discovered in 1822.

“ 4. The Maxbrunnen, probably the longest in use, and taken only internally.

“ 5. The Theresienquelle, the age of which dates from 1828.

“ Four of these—the Ragozzi, the Pandur, the Maxbrunnen, and the Theresienspring,—belong to the class of cold springs: their temperature not exceeding  $8^{\circ}$  or  $9^{\circ}$  degrees of Reaumur, or  $47.75^{\circ}$  to  $50^{\circ}$  of Fahrenheit. The Soolensprudel, however, approaches the temperature

of thermal waters,  $15\frac{1}{2}^{\circ}$  Reaum. The quantity of water yielded by these springs in a given time is considerable, amounting, in the case of the Ragozzi, the Pandur, and the Soolensprudel, to not less than forty cubic feet in a minute. This latter spring presents the extraordinary phenomenon of ebbing and flowing at stated intervals, yielding in its ebullitions an immense quantity of carbonic acid gas, which seems to be the power by which the water is propelled upwards.

“The annexed table points out the ingredients of all the springs at Kissingen, according to the analysis of K stner, from which their richness in mineralised matter will be at once seen. The predominant ingredient in these waters is muriate of soda, as important and requisite for the process of digestion as oxygen is for that of breathing. Besides this, we find a quantity of muriatic, carbonic, and sulphuric acid, combined with various salts. Iodine and bromine too are yielded by the waters of Kissingen.

“The second principal and characteristic ingredient is sub-carbonate of iron, contained in the three first-mentioned springs; none, however, is found in the Maxbrunnen and Theresienbrunnen. The existence of this metal in these springs renders them powerful remedial agents, more especially the Ragozzi, which contains more iron than any known water of which the chief ingredient is muriate of soda; while its total absence in the Maxbrunnen and Theresienbrunnen renders them peculiarly adapted to the treatment

of diseases in which iron might disagree, or is counter-indicated.

“Carbonic acid gas, that most vivifying and exhilarating element, constitutes the third essential ingredient of all the mineral waters of Kissingen. It is so minutely and intimately combined with the other substances entering into the composition of the water, that it does not escape either in drawing the water from the source, or during the act of deglutition. This is characteristic of all aërated waters.”

The use of the waters is particularly indicated in dyspepsia, and affections of the sexual organs; also in diseases of the chest, and rheumatic and gouty affections, existing either alone or combined with neuralgia and cutaneous diseases.

There are baths of various kinds at Kissingen, viz. of gas, steam, mud, and “mutterlange” (mother-water), or strong brine, which remains in the reservoirs after the crystallisation of the salt.

Kissingen is a very agreeable place, and I found the accommodations excellent; but it did not appear to be much frequented by the English at the time I was there, which was late in the season. The Ragozzi and Pandur are situated in a sunken terrace, which is reached by means of flights of steps, so that the water can be taken from the springs without the aid of pipes: a plan which is acted upon in many parts of Germany, and the adoption of which would be a great improvement at Bath and Cheltenham.

## ANALYTICAL TABLE OF THE SPRINGS OF KISSINGEN.

*By Dr. F. Anthony Balling.*

	RAGOZZI.	PANDUR.	MAXBRUNNEN.	THIERSEN- BRUNNEN.	SOOLENSRUDEL.
Temperature .....	9° R. 52 <sup>30</sup> F.	8·87° R. 52° F.	875° R. 51 <sup>30</sup> F.	9° R. 52 <sup>30</sup> F.	15·6° R. 60° F.
Gas in sixteen ounces { <i>a</i> ) Carb. acid, gr.	26·25 cub. in.	28·85 cub. in.	31·04 cub. in.	28·35 cub. in.	30·576 cub. in.
<i>b</i> ) Nitrogen "	traces	traces	0·008	0	traces scarcely perceptible
<i>c</i> ) Oxygen "	..	..	0·003	0·005	..
Residue on evaporating sixteen ounces .....	85·74 grs.	75·39 grs.	30·65 grs.	29·63 grs.	187·68105 grs.
Muriate of Soda .....	62·05 grs.	57·00 grs.	18·270 grs.	18·40 grs.	107·5153600 grs.
" " Potassa .....	0·91	0·25	1·002	0·85	0·9792000
" " Lithia .....	0·00	..	..	..	0·1920000
" " Lime .....	6·85	5·85	3·102	2·75	3·9936000
" " Magnesia .....	..	0·68	traces	0·07	24·5161000
Bromate of Soda .....	0·70	traces	..	traces	0·0000000
" " Magnesia .....	traces	..	..	traces	0·0629760
Iodate of Magnesia .....	0·00	..	..	traces	0·0000020
" " Soda .....	0·82	0·03	0·380	0·39	..
Carbonate of Soda .....	traces	traces	traces	..	..
" " Lithia .....	0·00	..	..	..	..
" " Potassa .....	3·55	5·85	2·590	0·05	1·6512000
" " Lime .....	traces	traces	..	2·00	..
" " Strontia .....	2·50	1·62	..	2·37	6·4128000
" " Magnesia .....	0·68	0·45	1·860	..	0·3550000
Sub-carbonate of Iron .....	traces	traces	0·651	1·35	0·0008815
" " Magnesia .....	2·00	1·75	0·125	0·75	25·3079100
Sulphate of Soda .....	2·50	0·75	0·465	..	..
" " Lime .....	0·17	0·05	..	0·50	doubtful traces
Phosphate of Soda .....	2·25	1·55	..	..	..
Silica .....	0·18	0·05	..	..	..
Alumina .....	..	..	..	..	..



LOUESCHE.—The springs of Louesche are situated in the Haut Valais, at the foot of Gemmi in Switzerland, and have been used with success in the treatment of chronic cutaneous affections, scrofula, irregular gout, ophthalmia, and paralysis unattended with cerebral disease, since the commencement of the twelfth century. They are of difficult access, and the cold moist air of the valley renders the use of warm clothing and flannel next the skin indispensable, although the season extends only from June to August. There are several springs possessing the same chemical composition, but varying in temperature from  $27^{\circ}$  to  $40^{\circ}$  Reaum. The water of the principal spring, called the Saint Laurent, is almost insipid, limpid, and inodorous; but when viewed in large quantities, appears slightly opalescent, and has a faint odour of sulphydric acid. These waters have been analysed by several chemists, and the results have been somewhat contradictory. The analysis of Messrs. Dublanc and Payen, in 1828, gives the following as the mineral constituents, viz. the sulphates of lime, magnesia, and soda; the chlorurets of sodium, potassium, and magnesium; and the carbonates of lime, magnesia, and iron. In addition, a small proportion of oxygen, azote, carbonic and sulphydric acid gases have been discovered. The presence of the last-named gas has been denied by Messrs. Brunner and Pagenstecher, who performed their analysis on the spot. They consider the traces of sulphydric acid, discovered by M. Payen, to have resulted from the decomposition of the sulphates. Brunner adds, that traces of the sulphate of strontian, the chloruret of

calcium, silica, and nitrate of magnesia, exist in these springs. The Louesche waters are rarely taken internally ; their more common use is in the form of lotions, injections, baths, and douches. Formerly the invalid used to remain in the bath four hours in the morning, and two in the evening. An hour or two after the first bath, a sensation of constriction of the skin is experienced, followed by heat and perspiration. After a few days, itching, and an eruption of red spots or patches, commence above the knees, and extend over the whole body, followed by the appearance of painful pustules, and febrile excitement. All these symptoms disappear in a week or a fortnight, in the order in which they shewed themselves : the epidermis separates in furfuraceous scales, and the itching alone continues. This train of symptoms is regarded as a proof of the efficacy of the baths, the use of which should not be interrupted while they are present. Mr. Lee says, “ When a person begins a course of the baths, he is presented with a flannel bathing-gown, which covers the body, and a tippet of the same material for the shoulders. The cure or period of treatment is usually of three weeks’ duration. On the first day, the patient merely remains an hour in the bath ; on the second day, two hours—the time being thus gradually increased to six or eight hours a day,—four in the morning and four in the afternoon. Most persons have floating-tables before them, to hold their handkerchief, snuff-box, books, &c. The third week is that of the *debaignée*, during which the time of remaining in the bath is gradually diminished. There are no separate baths for the female sex.”

LUCCA.—These thermal springs are situated about three-fourths up a high mountain, and are distant about ten miles from the capital city of the duchy of Lucca. They resemble the springs of Bath and Plombières, and are very celebrated throughout Italy. There are ten springs altogether, varying only in the quality, not in the nature of the mineralising agents, but possessing different degrees of temperature: the lowest being  $31^{\circ}$  R., the highest  $43^{\circ}$  R. They contain the sulphates of lime, magnesia, alumine with potass; the muriates of soda and magnesia, the carbonate of lime, silica, alumine, iron (extractive), and a small proportion of carbonic acid gas. They are considered to be more serviceable in cases of chronic rheumatism, gout, cutaneous diseases, obstinate ulcers, chlorosis, scrofula, debility of the digestive apparatus, obstructions consequent on intermittent fevers, diseases of the urinary organs, &c. Their use should be preceded by a saline purgative. They are employed in baths and douches, and also taken internally, in the dose of three or four glassesful. The springs are frequented from June to September.

MARIENBAD is situated in Bohemia, on the confines of Bavaria, about twenty miles south-west of Carlsbad. It is only about thirty-five years since the waters of this place were known to none but the peasants in the neighbourhood: at that time they attracted the attention of Dr. Nehr, who examined them with care, and having ascertained their efficacy in many diseases, published in 1813 the results of his inquiries. In consequence of this, Marienbad soon began to be much resorted to, and it has now grown into a considerable and rapidly increasing village.

The springs of Marienbad are of two kinds—chalybeate and saline; three of the former and two of the latter are those most used. Of the chalybeate springs, the Carolinenbrunnen is employed principally for drinking; it contains much carbonic acid gas. The Marienbrunnen is used for bathing.

The cases in which these waters are useful are the same as those for which chalybeates are generally recommended; but they are not so astringent as the pure chalybeate waters.

Water and mud baths are extensively employed here, in various scrofulous affections, in paralysis, atonic gout, &c. &c.; and gas-baths have also been introduced, as at Franzenbad.

The principal saline springs are, the Kreuzbrunnen and Ferdinandsbrunnen; which differ from the chalybeate springs chiefly in the much greater proportion of glauber and other salts contained in them—the quantity of iron being nearly the same in them all. The two latter springs are of course more purgative, and their waters are prescribed in constipation and torpidity of the liver. The Kreuzbrunnen is the most famous and most used of the springs at Marienbad. Its temperature is 9° Reaumur.

Two cases are given by Dr. Heidler of cures by means of these waters, which are very similar to some given in a previous part of this work as having been effected by the use of the metropolitan spas.

PFEFFERS.—These celebrated thermal springs are near the village of the same name, in the canton of Saint Gall in Switzerland. They are situated in a fearful gorge in the rocks, formed by the impetuous river Tamina; the



pathway leading to them is exceedingly narrow, and so dark, that even in summer the sun is visible only from eleven to three. The temperature of the springs is 30° Reaumur. They are inodorous, tasteless, colourless, and transparent. They are used internally and externally, from the middle of June to the beginning of September, for the relief of cutaneous affections, and disorders of the stomach, liver, and bladder. The principal ingredients are, the muriates of magnesia and soda, the sulphates of soda and lime, the carbonates of lime and magnesia, resin and extractive. Fabricius Hildanus, who described these baths, says, that in his time patients used to remain entire days in them, eating, drinking, and sleeping; from which practice occasionally resulted a cutaneous eruption similar to that caused by the springs of Louesche, but not so painful.

PULLNA.—A small village near Brux, in Bohemia, where there exists a cold spring, analogous to those of Sedlitz and Seidschutz. The analysis of M. Barruel shews it to contain the carbonates of lime, iron, and magnesia, the chlorurets of sodium and magnesium, the sulphates of lime, soda, and magnesia, and a substance bearing some resemblance to mucus. Two or three glassesful act as a purgative. The waters are useful in the same cases in which those of Sedlitz are employed.

PYRMONT.—This pretty town is in Westphalia, about seven leagues from Hanover. There are several springs of high reputation at Pyrmont, which have been frequented for ages by invalids. Of these, some are used internally only, others exclusively in the form of baths. The principal spring, called the *Trinchquelle*, is that which sup-



plies all Europe with the exported Pyrmont waters; it is constantly covered with a cloud of vapour in calm weather. The water is very clear, and contains more gas than that of Seltz. The *Sauerling* is another spring the water of which is taken internally; while the waters of the *Brodelbrunnen* and the *Badebrunnen* are reserved solely for baths. The *Augenbrunnen*, or eye-water spring, is used, as its name would indicate, in affections of the eye; and Hufeland is said to have been very successful in treating specks on the cornea, *muscæ volitantes*, &c. with it. According to the analysis of Messrs. Brandes and Krueger, the most important of these springs, the *Trinckquelle*, contains sub-carbonate of iron, manganese, soda; hydro-chlorate, sulphate, and hydrosulphate of soda; phosphate of potass; carbonate, sulphate, and phosphate of lime; carbonate, hydro-chlorate, and sulphate of magnesia; silicic acid, and resinous matter, besides carbonic and hydro-sulphuric acid gases. Lithium has been discovered in it since. The water of this spring has been recommended in a great many diseases; two, four, eight, or more glassesful being taken, one every quarter of an hour, in the morning, fasting. The effect is aided by moderate exercise. They are regarded as strengthening and deobstruent, and are particularly serviceable in cases of debility, chronic enlargement of the abdominal viscera, paralysis, gouty affections, &c.

SCHINZNACH, or SCHILTZNACH. — This sulphureous spring is situated about twenty miles from Baden, at the foot of a hill, on the right bank of the Aar, and is one of the most celebrated in Switzerland. It contains the sul-

phates of soda, magnesia, and lime, the muriates of lime and magnesia, carbonate of magnesia, oxide of iron, bitumen, carbonic acid and sulphydric acid gases. The waters are deterative and tonic, and sometimes produce an eruption on the skin.

Mr. Lee says, "Invalids both drink and bathe. Drinkers assemble at the spring as early as five in the morning; those who bathe usually remain four or five hours in the water, as at some other places in Switzerland. The springs are of the saline sulphureous kind; their temperature is 63° Fahrenheit. They have a high reputation in the country in cutaneous and rheumatic affections, visceral obstruction, and glandular enlargement."

SCHLANGENBAD.—These warm springs, situated in the duchy of Nassau, at a little distance from Wiesbaden, take their name, the Serpents' Bath, from the number of innocuous serpents found in the neighbourhood. They were discovered two hundred years ago, and are used in the form of baths in cases of gout, rheumatism, contracted limbs, nervous affections, and as a cosmetic to soften the skin. The waters are administered internally in pulmonary disease. Hoffmann believed them to be little better than pure water. The principal mineral ingredients are muriate of soda and lime. Here, as at Wiesbaden and elsewhere, there is a bath appropriated to animals labouring under disease. I have heard of a gentleman in this country who has a warm bath always provided for his horse after hunting.

SCHWALBACH lies between Wiesbaden and Ems, in the

duchy of Nassau, not far from the Rhine. Having read "Bubbles from the Brunnen of Nassau," I felt some curiosity to see Schwalbach, and had the good fortune to visit it in company with Baron von Wiegel and Professor Otto. I must say that my expectations were disappointed.

Schwalbach is a very quiet, secluded place, with no great attractions in the shape of scenery. There are but few amusements, and the accommodations are indifferent. The waters are chalybeate ; the three principal springs are the Stahlbrunnen, the Weinbrunnen, and the Pauline ; all of which contain a very large proportion of carbonic acid gas. The waters are of use in the same class of cases as those mentioned under the head of "Spa." A few years ago the Duke of Nassau erected a fine bathing-house ; and since that time the water has been much used externally.

My companions and I drank of the Weinbrunnen ; and I certainly never tasted a more agreeable mineral water.

The water of these springs is of a reddish brown colour, arising from the oxide of iron ; and Sir F. Head gives an amusing account of the effect produced on the body by bathing in what he describes as "a mixture which looked about as thick as a horse-pond, and about the colour of mulligatawny soup."

SEDLITZ is a village of Bohemia, a few miles from Teplitz, famous for its purgative mineral waters, which, according to the analysis made by Hoffmann, contain a large proportion of sulphate and muriate of magnesia.

Steimann has found sulphate, muriate, and carbonate of magnesia; sulphate and carbonate of lime; sulphates of potass and soda; carbonates of strontium and iron; manganese, alumine, silica, and carbonic acid gas. There is scarcely any mineral water more used than this, either as a mild laxative or saline purgative. The water is exported in large quantities throughout Europe. It is used with advantage in plethora, constipation, dropsy, in some cases of cutaneous eruptions, and also for children troubled with worms. The full aperient dose is at present one pint; but Hoffmann used to give only half that quantity. As a laxative, a glassful is sufficient.

SEIDSCHUTZ is a city of Bohemia, long celebrated for its aperient mineral waters, of which 500,000 bottles are sold annually. M. Foderé states that they contain the sulphates of magnesia and lime, the muriates of magnesia, lime, and iron, the carbonates of lime and iron, silica, and carbonic acid gas. It is employed in the same cases as the waters of Sedlitz, from which it differs in being less gaseous, more bitter, more saline, and consequently more active. Dr. Granville speaks of the presence of nitrate of magnesia in these waters, which is thus accounted for. "Upon analysing the earth around the springs of Seidschutz, Struve found all those ingredients in it which are also found in the water; but he could not, for some time, detect the source of that one peculiar mineral salt, the nitrate of magnesia, which was contained in the water. At last, by examining more minutely the localities, he discovered that there were three or four extensive marshes



or lagoons, higher up, and above the level of the springs, in which plants as well as animalcules were abundant. Struve suspected that these, during the process of their decomposition, might supply the nitric acid. Accordingly, he proceeded to analyse the water of the lagoons, and sure enough he detected in it nitrate of magnesia, with nothing else. It was evident, therefore, that this water, so charged with the salt, made its way, by percolation, to the lower level, as far as the springs in the neighbourhood, dissolving, as it proceeded, other ingredients from the contiguous minerals, and thus forming the Seidschutz water.”

SELTZ or SELTERS.—This justly celebrated spring is found in a village in Nassau, situated in the public road from Frankfort to Cologne, about thirty miles from Mayence. The waters have been analysed by different chemists, who have found a slight variation in the constituents at different times. Bergman states it to contain carbonic acid and oxygen gases, the carbonates of lime, magnesia, and soda, and muriate of soda; in addition to which Andrea and Westrumb ascertained the presence of sulphate of soda, carbonate of iron, and silica. The water is cold, sparkling, and acidulous; and it is either in its real or artificial form more generally used than any other mineral water, on account of its pleasant flavour. I observed that it was much in use at the table-d'hôtes in Germany; and in this country a great deal is sold which wants the stamp of genuineness—the test is easy, the real and fresh water effervescing on the addition of a little sugar. One million five hundred thousand bottles are exported annually. It



acts as a diuretic, aperient, and stonachic ; it excites appetite, facilitates digestion, and improves the secretions without causing irritation. It is recommended in cases of dyspepsia, torpor of the digestive apparatus, affections of the abdominal viscera and urinary organs. Hufeland advises it also in pulmonary affections unattended with a tendency to hæmorrhage.

SODEN.—The springs of Soden, in the duchy of Nassau, near Königstein, are seven in number, but do not possess much reputation. They are all slightly astringent, and contain a proportion of free carbonic acid gas. The Sauerbrunnen is the most important. It contains less carbonic acid gas than the others. Dr. Granville, in speaking of the waters of Soden, says, “ The Germans are too fond of discovering mineral waters, where only a little dirty water with kitchen salt and some iron or steel are present. I should be sorry to recommend such uninviting springs as those of Soden appeared to me to be, for diseases of any sort, or advise any body to take the trouble of going thither in search of health ; yet new houses are building in all directions at Soden. The springs are to be cleansed and put in decent order, and pavilions will probably be erected over them. The Badhaus, too, is to be placed on a superior footing ; and it is expected that the number of visitors, which is already on the increase, will, in a short time, become as great as can be desired.”

SPA.—This far-famed resort of persons in search of health is situated in the Forest of Ardennes, thirty miles from Aix-la-Chapelle, and twenty-four from Leige. By

means of the steam-boats which start from London to Antwerp twice a week, and of the new railroad from that place to Leige, the journey to Spa may be performed without hurry or inconvenience in thirty hours, from which place, those who have time and inclination may easily reach the principal spas of Germany. It is of no small advantage to this crowded metropolis to be thus placed in such close connexion with those celebrated springs, formerly the resort of all Europe, and now, by the influx of fashion, regaining their ancient repute.

The waters of Spa are of the chalybeate kind, and inferior only to those of Pyrmont in efficacy. At one time, they were probably more frequented than any other mineral springs in Europe: persons of the highest rank frequently visiting them in search of health. It appears that since the Belgian revolution, and the establishment of Belgium as a separate kingdom, the number of visitors has very much fallen off—the Dutch having almost wholly deserted it, in consequence of its situation in the territory of the rival state. The English also seem to have got tired of Spa, and to prefer for the present the newer watering-places of Germany; yet few places possess greater attractions and solid advantages, either for recreation or health, than Spa. The surrounding country is very diversified: here lofty hills clothed with woods, and there fertile valleys teeming with riches. The accommodations are very extensive, excellent, and cheap; nor is there any lack of amusements, though unfortunately these are not all so innocent as might be desired—gambling being as prevalent a mode

of spending time here as at most German watering-places. Add to these natural and artificial advantages the undoubted efficacy of the waters in weakness and excessive sensibility of the digestive organs, in chlorosis, and some other female complaints, and in nervous disorders, and it must be admitted that the decline of Spa affords another striking proof that the caprices of fashion are governed by any thing rather than the intrinsic qualities of the objects to which they relate. The use of the waters generally increases the appetite, the flesh, and strength of the drinkers.

The most powerful of the mineral springs at Spa is the Pouhon, which rises in the centre of the town, and over which a building has been erected to the memory of Peter the Great, who found much benefit from drinking the waters. The Sauvenière, the Gröesbeck, the Tonnelet, and the Geronstère (the latter a sulphuretted chalybeate), have their sources at distances from the town averaging about a mile: good roads, planted with avenues, connect them with the town; and the climb to these springs, on foot or on horseback (for which latter description of exercise there are abundant facilities, horses being numerous, and let for hire at very reasonable rates), assists, in no immaterial degree, the beneficial effects of the waters.

I visited Spa for the first time about ten years ago, when labouring under the effects of too severe application to professional pursuits, and derived so much benefit from drinking the waters, combined with the sea-voyage, exercise, and change of scene, that in a few days I was perfectly well. Among the pleasant rides I may mention that down the

mountain to the cascade of Coo ; the road to which is very steep, and should not be attempted on horseback by a timid horseman. I must warn my readers, however, that there are no accommodations at the place. I went with the expectation of being able to procure sufficient entertainment ; but found only a small inn, kept by the curate of the village, who made a store-room of his sleeping chamber, and had nothing but articles of the most common description ; so that I was glad to get back to the table-d'hôte at Spa. Visitors, then, to the cascade of Coo should set out early, so as to be able to return in time to dine at Spa.

For the purpose of enjoying greater diversity, I should recommend going to Spa by way of Ostend, Bruges, Ghent, and Brussels, and returning *via* Aix-la-Chapelle and Antwerp.

TEPLITZ is in Bohemia, nearly due south of Dresden ; it has of late years become the favourite summer resort of crowned heads, and others of the highest rank. The King of Prussia has a palace here, in which he generally resides during the season. Its waters belong to the alkaline class, and are of a high temperature, varying from 39° to 21° Reaumur. When at Teplitz I visited the baths, in company with Dr. Bischof and Dr. Theodore Richter, the resident physicians, and was greatly pleased with them ; they are undoubtedly the finest and best arranged baths I have ever seen. What particularly pleased me was, that one could have a bath in the water as it springs fresh and pure out of the earth. Such a bath as this I really

did enjoy. The waters of Carlsbad are much drunk at Teplitz by persons who are bathing in those of the latter place.

I met with great kindness from the two gentlemen just mentioned, and Dr. Richter has recently sent me an account of Teplitz and its waters, which I have much pleasure in presenting to my readers, as it will carry more authority with it than anything I could say, coming as it does from a resident physician, whose reputation is too well established, and too widely diffused, to render it necessary to say a word confirmatory of it.

“The situation of Teplitz is in a picturesque valley, and all smiling country, covered with villages, castles, orchards, meadows, corn-fields, and enclosed between a double range of mountains—the Mittelgebirg at the south, and the Erzgebirg protecting it on the north—both clad in verdure to their very tops, while here and there

‘Ancient towers crown the brow  
That cast an awful look below.’

“The geological character of the soil betrays a volcanic origin; the purity of the air makes it one of the healthiest climes in Germany, while the surrounding country presents many points of attraction in beautiful unrivalled scenery, glorious historical records, antiquities, paintings, curiosities, &c., and which are in such variety as none of the other German watering-places present.

“There are eleven springs, hallowed by an antiquity of eleven centuries, and six magnificent bathing establish-



ments, besides some smaller ones, containing altogether eighty-six private baths and seven large common baths. Of the physical properties of the water, the temperature, of from  $21^{\circ}$  to  $39\cdot5^{\circ}$  Reaumur, is the most important: chemical analyses of it have been made by Berzelius, Ficinus, and others, evincing the carbonate of soda as the prevailing ingredient.

“I will now point out those diseases in which the effects of the water are most striking, and second to none of the other springs of Germany. I hope I shall not be partial in putting their efficacy against gouty, rheumatic, and paralytic affections above that of Wiesbaden, Baden-Baden, and all the other German spas. But to produce such salutary effects, the gout ought to be attended by the character of atony, and be manifested under the form of chronic pains, exanthems, contractions of limbs, weakness and swelling of the joints, nodes of not too long standing; and, to be short, all those affections left by repeated regular attacks will derive the most signal benefit from our wells; whereas gout whilst regular will be more benefited by those of Carlsbad or Marienbad. As to rheumatism, however inveterate, it will almost always yield to our waters, so long as wasting and hectic fever have not yet made their appearance. In paralytic affections, if caused by a metastasis, viz. by a suppression of cutaneous perspiration, or of a chronic exanthem, or an ulcer, or if fostered by a metallic influence (as mercury, lead), the Teplitz springs will be of the most eminent service; on the contrary, if brought on by an organic defect of the brain or the spinal cord, such

as hypertrophy, atrophy, emollition, tubercles, and other excrescences, there can be no hope either at Teplitz or at any spa in the world. However, the palsy left by an apoplexy, if not the result of repeated attacks, and not of too long standing, will almost always be essentially benefited. Another kind of complaints, with regard to which Hufeland, that veteran of German medicine, ranks the Teplitz waters above all the other German springs, is presented by surgical diseases and their consequences—old wounds, ulcers, caries; as well as difficulty of movement, stiffness of the joints, contractures of limbs, and all sorts of pains left by contusions, contortions, fractures, wounds, &c.

“Though in nervous disorders, be they cramps or pains, chalybeate waters generally are indicated, there are many such cases, proceeding from a gouty or rheumatic metastasis, from a suppression of universal or local perspiration, from a precipitate healing of old sores, from a repercussion of an exanthematic principle, in which the Teplitz wells are more advantageous. The same may be said when the nervous disorder originates in a mere agility of the nervous system, often hereditary, which chalybeate waters seldom agree with at the beginning. In that case, the waters of Teplitz are of the greatest service, often performing the cure themselves, or at least preparing the organism for a course of the chalybeate waters.

“Finally, I may venture some remarks about diseases of the ear, respecting which you seemed particularly desirous of information. In all diseases of this kind, if of a rheumatic or arthritic character, or if produced by the

metastasis of a chronic exanthem, such as herpes, psora, or by the hasty sanation of a sore, an issue, a local sweat, or, lastly, by any suppression of coryza, or other mucous discharge whatever, our thermal waters as a depurative, as well as a derivative, will be, unquestionably, of the most valuable service. Besides, we are possessed of contrivances for local application of the thermal water dissolved in steam; and it is obvious that such a vapour-douche, for its highly exciting virtue, must prove very successful in that species of hard-hearing which is the mere result of a torpor of the nerves. As to diseases of the eyes, there is in Teplitz a peculiar spring for them, called accordingly the *Augenquelle*. It is used by people with scrofulous disorders, dry eye-lids, and as an external remedy.

“The new and short way which is opened to your countrymen since the construction of the Magdeburgh railroad, will now enable them to get from London as far as Dresden by means of steam, without any interruption, and here is but half a day’s pleasant drive from Dresden to Teplitz.”

VICHY.—These springs have long been celebrated as the most valuable thermal springs in France, and have recently acquired an increase of reputation from the experiments that have been instituted of late years with respect to their power of dissolving stone in the bladder. Vichy is situate on the right bank of the Allier, about 260 miles from Paris. The springs, which are seven in number—six hot, and one cold,—belong to government. Their action is deobstruent, aperient, diuretic, and tonic; and they are

especially recommended in diseases of the liver, hepatic colic, enlargement of the spleen and mesentery, and in disorders of the stomach. They are also useful in chlorosis, hypochondriasis, maladies of the urinary organs, &c. They are of no use in cutaneous affections, and are contra-indicated in acute diseases and in pulmonary complaints. The attention of the profession was drawn to the use of the waters as a solvent for calculus, from finding the urine, perspiration, &c. become exceedingly alkalinescent after their use; and that if this latter was at all protracted, the alkaline condition of these secretions was very continuous. The experiments that have been instituted with respect to this give reason to hope that the waters of Vichy possess a certain degree of solvent power. They contain a very large proportion of carbonate of soda, in addition to the carbonates of lime, magnesia, and iron, muriate and sulphate of soda, silica, and free carbonic acid gas. Berzelius is of opinion that they also contain the carbonate of strontium, and the fluuate and phosphate of lime—salts which have hitherto been discovered only in the waters of Carlsbad. They are much frequented by the nobility and gentry from all parts of the continent.

WIESBADEN, the capital of the duchy of Nassau, is situated near the Rhine, and within a short distance of the cities of Mayence and Frankfort.

The site of Wiesbaden is as congenial to health as it is favourable to luxuriance of vegetation. Being surrounded on the north by the mountains of the Taunus, the winter there is much milder than in many more southern



countries; and the heat in summer is frequently oppressive. The scenery of the neighbourhood is diversified and charming. The beautiful *Rhinegau*, acknowledged to be the paradise of Germany, is within an hour's journey hence; and the Rhine, with its numberless picturesque views and buildings, is visible from the town.

Wiesbaden is gifted with whatever can cheer the life of persons of refined manners, and satisfy all reasonable wants. Board and lodging are very reasonable; and there is an abundant supply of every species of provisions, some of which are rare and expensive in England, as, for instance, game, venison, and wines.

I came to Wiesbaden from Schwalbach in company with Baron von Weigel and Professor Otto, with whom I dined at the Cursaal\* and visited the different baths. During my stay I also dined at the Hotel der Vier Jahreszeiten, both which are very comfortable places. The day after my arrival I bathed in the principal bath, which is separated into single baths by means of wooden partitions, which I found extremely unpleasant, and was glad to

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\* When here I suffered much from cardialgia (heart-burn), occasioned by drinking the Rhenish wines. The remedy generally employed at Wiesbaden for this complaint is magnesia; but as this did not relieve me, I had some creta lozenges rudely prepared, which afforded me present ease, and have been of considerable benefit to some friends of mine to whom I gave them. They not only remove the unpleasant sensation in question, but also act, when combined with the acids in the stomach, as a corrective. I have



get out of the bath as soon as possible. Such an arrangement is very little better than bathing in common public baths, so far as privacy is concerned, and in some respects it is inferior. In the adjoining box a person was bathing ; and although I could not see him, I could but too distinctly hear him coughing, spitting, groaning, and making other equally agreeable noises, which, added to a sensation of syncope and giddiness, arising from the heat and fumes of the water, made me in a hurry to escape into the air. It is true that I was induced to enter the bath solely from curiosity, being at the time in perfect health, and this, probably, was the reason of the unpleasant effects of the bath upon me ; but when I mentioned the circumstance to Dr. Peez, the principal resident physician, (who shewed me much kindness, by conducting me over the baths at the Adler, accompanying me to see a deaf and dumb patient, and also presenting me with a copy of his work on Wiesbaden), he said, " I had not stayed long enough in the bath ;" but with this opinion I must say I could not agree.

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since had some made of the finest prepared chalk, which answer the purpose effectually. These lozenges are made from my prescription, by Messrs. Gifford and Linder, No. 104 Strand, who have also made the factitious mineral-water powders of Altwasser, Carlsbad, Ems, Kissingen, Marienbad, Pulna, Pymont, Schwalbach, Seltzer, Spa, Vichy, Wiesbaden, &c. These powders are recommended to the invalid, and to all who are in the habit of drinking mineral waters, as being excellent imitations, and perfectly safe.

At the same establishment they have an apparatus for steaming the eyes and ears, which was shewn and explained to me by the superintendent of the bath. Some of the German practitioners have great faith in this method; but I cannot say that I participate in their feelings on the subject.

Early the next morning I went to drink of the water of the Kochbrunnen, and found there already assembled numerous drinkers, who were walking up and down, to the music of an excellent band, which has a very enlivening effect.

From the work of Dr. Peez I extract the following information respecting the waters of Wiesbaden, and am sure its accuracy may be safely relied on:—

“ Within the last twenty years the proportion of visitors has increased considerably. The powerful efficacy of the water of Wiesbaden, in disorders of the abdomen, was gradually prized properly, after its sanative power in cases of gout, rheumatism, and chronical exanthemata, had long been generally acknowledged. The number of visitors now increased in rapid progression; the bathing establishments were enlarged and improved, and new ones of extraordinary extent erected. The ducal administration, being sensible of the demands of the age, aided them most liberally and generously. Charming promenades were created in the environs of Wiesbaden, the *Cursaal* (pump-room), serving the genteeler class of strangers for a rendezvous, and the equally grand colonnade (a bazaar constructed in the oriental style) erected contiguously to it.

The most powerful hot-spring, the *Kochbrunnen* (scalding-well), as it is called, has been enclosed tastefully, and surrounded with promenades.

“Some of the bathing houses have springs belonging to them, whilst others share among them the water of some copious one. The *Kochbrunnen* is one of the first of the latter class, supplying the *Blume* (flower), the *Rosc*, the *englische Hof* (court of England), the *schwarze Boock* (black he-goat), the *Engel* (angel), the *Schwan* (swan), the *Ross* (horse), the *Römerbad* (bath of the Romans), and the *Hospital*.

“The hotel of the *Spiegel* (mirror), situated between these, is supplied by a spring of its own, issuing within a few steps of the *Kochbrunnen*, from which it does not differ in quality.

“The large hotel and bathing house of the *Adler* (eagle) has the advantage of a copious open spring belonging to it, which also supplies the *Bären* (bear), the *goldene Brunn* (golden fountain), and the *Krone* (crown).

“The *Schützenhof* (archers’ court) and the *Gemeinbad* (common bath), too, as well as the *Reichsapfel* (imperial globe) and the *Stern* (star) have springs in common.

“Other bathing establishments have springs of their own, issuing at a smaller or greater distance from them. These are, the *vier Jahreszeiten* (the four seasons), the *Kette* (chain), the *zwei Böcke* (two he-goats), the *Sonne* (sun), the *Rebhuhn* (partridge), and the *halbe Mond* (half-moon); the latter two being Jewish bathing-houses.

“Adjoining the *Schützenhof* is the *Gemeinbad* (com-

mon bath), appropriated to the admission of journeymen and servants, who may bathe there at all times, at the price of one or two kreutzers. Its internal regulation is very proper; and it is the laudable scope of this establishment to promote cleanliness and the use of baths as much as possible among the lower classes of the community.

“There are at Wiesbaden above 700 bathing closets, which are increasing annually, and only in the bathing establishments properly so called, above 900 apartments expressly fitted up for the accommodation of bathing visitors. The introduction of cooling reservoirs has enabled some first-rate bathing establishments to make a repeated use of each reservoir in the course of the day.

“There are, besides, many private lodgings fitted up and provided with the requisite bathing apparatus, for the accommodation of strangers whose infirmities and habits require a more quiet circle.

“The water of the major part of the hot mineral springs of Wiesbaden is perfectly clear and limpid, in some only assuming a greyish-yellow hue. Its smell resembles that of boiled eggs opened soon after they are done, or that of quicklime when smelt at some distance whilst in a state of effervescence. Its taste may be compared with that of weak broth rather oversalted.

“Mr. Kastner’s procedure proved that the water of the *Kochbrunnen*, in a pound avoirdupois, contains the following proportion of ponderable substances:—

1. *Acids.*

Carbonic acid, 3·977970 grains (or 5·75 parts disengageable by boiling, and with 1·6869 (not disengageable by boiling)=7·6869 inches.

	Grains.
Muriatic acid . . . . .	24·2501615
Sulphuric acid . . . . .	0·638834
Silicious acid . . . . .	0·19026

2. *Saline bases.*

Lime . . . . .	3·897848
Magnesia . . . . .	0·67849
Soda . . . . .	23·8902295
Potash . . . . .	0·75912
Alumina . . . . .	0·40974
Oxide of iron . . . . .	0·042

A pound avoirdupois of the Kochbrunnen consequently contains, upon a stœchiometrical calculation, the following saline component parts:—

	Grains.
Magninchlorate . . . . .	0·70
Carbonate of lime . . . . .	1·65
Carbonate of oxide of iron . . . . .	0·078
Sulphate of soda . . . . .	0·70
Sulphate of lime . . . . .	0·12
Calcinchlorate . . . . .	5·18
Kalinchlorate . . . . .	1·20
Natrinchlorate . . . . .	43·741
Aluminsilica . . . . .	0·60

From this analysis it appears that the waters of Wies-



baden belong to the saline thermal class, of which they rank amongst the most powerful. The temperature of the Kochbrunnen is  $151^{\circ}$  Fahr. They are used in the form of baths as well as internally: their effect is to stimulate the skin and absorbent system; taken internally they promote digestion and the action of the kidneys."

This water is particularly recommended by Dr. Peez in the cases of persons labouring under the consequences of the endemic fevers and liver complaints of the East and West Indies; in gouty complaints, rheumatism, and cutaneous diseases; in some kinds of paralysis and sequelæ of apoplexy; in many female diseases; in those occasioned by the improper or excessive use of mercury; in cases of old wounds, ulcers, &c. &c.

Patients here, as at most other watering-places, begin with a small beaker of the water, and increase the dose gradually to two or three glasses. A beaker contains about six ounces.

YESET is a village between Uzés and Alais, in France, possessing a cold mineral spring, within the distance of a mile, which was formerly looked upon as sulphureous. It has an unpleasant flavour. It contains the sulphates of lime and potass, and bituminous matter. It is said to be laxative, diuretic, and deobstruent; and is recommended in cases of obstruction, and affections of the chest.

I subjoin tabular views of the composition of the principal mineral waters of England and the continent, for which I am indebted to Professor Brande's "Manual of Chemistry."

**TABULAR VIEW OF THE COMPOSITION OF MINERAL WATERS.**  
*One Pint ( Wine Measure) contains the following Ingredients:*

Waters.	Gases.			Carbonates.			Sulphates.			Muriates.			Oxide of Iron.	Silica.	Tem- pera- ture.	Total of Saline Con- tents.	Authority.
	Nitro- gen.	Carbonic Acid.	Sulphuretted Hydrogen.	Carb. of Soda.	Carb. of Magnes.	Carb. Lime.	Sul. Soda.	Sul. Magn.	Sul. Lime.	Mur. of Soda.	Mur. Mag.	Mur. Lime					
<i>Carbonated.</i>																	
Seltzer .....	cub.in.	cub.in.	cub.in.	grains	grains	grains	gr.	grains	grains	grains	grains	gr.	..	..	cold	29.0	Bergman.
Plymouth .....	..	17.0	..	4.0	5.0	3.0	..	5.5	8.5	17.0	1.5	..	0.6	..	do.	30.6	Ditto.
Spa .....	..	26.0	..	1.5	10.0	4.5	..	..	..	0.2	..	..	0.6	..	do.	8.3	Ditto.
Carlbad .....	..	13.0	..	5.0	..	1.5	8.5	..	..	4.5	..	..	a trace	0.3	165°	19.8	Klaproth.
Pouéges .....	..	5.0	..	10.0	1.2	12.0	..	..	..	2.2	..	..	2.5	0.5	cold	28.4	Hassenfratz.
Saint Parize .....	..	30.0	..	..	0.5	11.5	..	..	13.0	..	..	..	..	..	do.	25.0	Ditto.
<i>Sulphureous.</i>																	
Harrowgate .....	0.8	1.0	2.3	..	0.7	2.5	..	1.3	..	77.0	11.0	1.5	..	..	do.	94.0	Garnet.
Moffat .....	0.5	0.6	1.2	..	..	..	..	..	..	4.5	..	..	..	..	do.	4.5	Ditto.
Aix-la-Chapelle .....	..	..	5.5	12.0	..	4.2	23.5	5.0	1.2	5.0	..	..	0.3	..	143°	21.2	Bergman.
Cheltenham Sulphur Spring .....	..	..	1.5	..	..	..	..	..	..	35.0	..	..	..	..	cold	65.0	Parkes & Brande.
<i>Saline.</i>																	
Seidlitz .....	..	..	..	..	2.5	0.8	..	180.0	5.0	..	4.5	..	..	..	do.	192.8	Bergman.
Cheltenham pure Saline .....	..	3.5	..	..	..	1.5	15.0	11.0	4.5	50.0	1.0	..	..	..	do.	80.5	Parkes & Brande.
Bristol .....	0.2	..	..	..	..	1.3	1.5	..	1.5	0.5	..	..	0.03	..	74°	6.0	Carrick.
Buxton .....	..	..	..	..	..	0.8	1.5	..	0.3	0.2	..	..	a trace	0.03	82°	1.83	Pearson.
Bath .....	..	1.2	..	..	..	a trace	1.5	..	9.0	3.3	..	..	ditto	0.2	116°	14.6	Phillips.
Scarborough .....	..	..	..	2.5	..	ditto	20.0	..	9.0	..	..	..	..	..	cold	2.9	Saunders.
Barège .....	..	..	uncertain	2.5	..	ditto	..	..	a trace	0.5	..	..	..	..	120°	3.0	Ditto.
Plombières .....	..	..	..	2.2	..	0.3	2.3	..	..	1.5	..	..	..	0.3	?	66.0	Vauquelin.
Kilburn .....	..	3.5	8.5 ?	..	0.5	1.0	12.0	37.0	5.5	2.5	5.5	0.2	a trace	..	cold	64.2	Schneisser.
Leamington New Bath .....	0.4	a trace	a trace	..	..	..	19.0	..	11.0	53.0	1.5	..	0.8	..	do.	88.3	Lambe.
Leamington Old Bath .....	0.3	..	ditto	..	..	..	7.5	7.0	18.0	41.0	..	..	..	..	do.	73.5	Ditto.
<i>Chalybeate.</i>																	
Tunbridge .....	0.59	1.0	a trace of oxygen	..	..	0.03	..	..	0.17	0.30	0.03	0.05	0.28	..	do.	0.56	Scudamore.
Cheltenham Chalybeate .....	..	2.5	..	0.5	..	..	22.7	6.0	2.5	41.3	..	..	0.8	..	do.	73.8	Parkes & Brande.
Brighton .....	..	2.2	..	..	..	..	..	..	4.0	3.0	0.75	..	1.4	0.14	do.	9.29	Marcet.

Table of Analysis of the principal Mineral Waters of Germany.

Ingredients found in Sixteen Ounces of Water in a Dry State, in Grains.	Carlsbad.	Ems.	Marientbad, Kreutzbr.	Auschowitz, Ferdinands- brunnch.	Eger, Fran- zensbr.	Pyrmont.	Spa.	Gellnau.	Selters.	Seldschutz	Pullna.
Carbonate of Soda.....	9.695	10.750	8.26	6.197	5.00	..	0.7375	6.6210	6.155	..	..
Sulphate of Soda.....	19.689	..	39.72	22.544	25.50	2.14566	0.0375	0.0420	..	23.4960	123.8
Muriate of Soda.....	7.975	7.634	12.45	8.996	7.96	..	0.44919	0.5430	17.292	..	..
Sulphate of Potash .....	..	0.540	0.93	..	0.93	0.04194	0.07909	0.2872	0.397	4.8940	4.8
Muriate of Potash .....	..	0.045	..	..	..	..	..	..	0.358	..	..
Carbonate of Lime .....	2.37	1.1407	4.1300	4.016	1.847	5.98824	0.9850	2.9705	2.1870	6.8060	0.77
Sulphate of Lime .....	..	..	..	..	0.014	7.22132	..	..	..	1.5050	2.6
Sub-phosphate of Lime .....	0.0017	..	..	..	..	..	0.01366	..	..	0.0156	0.0035
Fluate of Lime .....	0.024	0.00192	..	..	0.600	0.32352	1.12278	2.1709	0.0018	1.0980	6.406
Carbonate of Magnesia ..	1.369	0.7887	3.0560	2.4	..	2.69752	..	..	1.3780	83.1380	93.086
Sulphate of Magnesia ..	..	..	..	..	..	1.12664	..	..	..	1.6300	19.666
Muriate of Magnesia.....	..	..	..	..	..	..	..	..	..	7.9070	..
Nitrate of Magnesia.....	..	..	0.0075	..	..	..	..	0.0247	..	..	..
Alumina .....	..	..	..	..	..	..	..	..	0.0027	0.0117	..
Sub-phosphate of Alum ..	0.0024	0.0018	..	..	..	0.01478	0.00851	..	0.0192	..	..
Carbonate of Strontian ..	0.007	0.0107	..	..	..	..	..	..	..	0.0463	..
Sulphate of Strontian ..	..	..	..	..	..	0.02063	..	..	0.0019	..	..
Carbonate of Barytes ..	..	0.0029	..	..	..	0.49689	0.4985	0.2695	0.302	0.1200	0.176
Silica .....	0.577	0.4139	0.8800	0.669	0.568	0.42846	0.3751	..	0.0127	..	..
Carbonate of Iron .....	0.0278	0.026	0.1760	0.4	0.350	0.04852	0.0519	..	..	0.0042	..
Carbonate of Manganese ..	0.006	0.0037	0.0065	0.092	0.006	..	..	..	..	..	..
Total .....	41.9239	21.35932	69.616	45.314	42.775	20.55412	4.35903	12.9288	28.0946	130.6845	251.3075
Carbonic Acid Gas in } 100 cubic inches .. }	58	51	125	149.56	154	160	136	163.3	130	6.4	6.9
Temperature (F).....	{ Sprud. 165° Neub. 138° Muhl. 128° Ther. 122°		53°	49°	53°	56°	50°	51°	58°	58°	58°
Analysed by.....	Berzelius.	Struve.	Struve.	Steinmann.	Struve.	Struve.	Struve.	Struve.	Struve.	Struve.	Struve.

I have now gone through most of the principal continental springs; and shall only add, in conclusion, that many of them are very valuable remedial agents, and superior to any of our own mineral springs both in strength and quality. At the same time I am decidedly of opinion, that the British Spas are capable of doing quite as much for a large proportion of the visitors to the foreign springs as the latter, and should be tried first, except where the nature of the disease requires the use of waters peculiar to the Continent. I must add also, that not a few of the foreign spas possess springs differing but little from common water; and would never have become places of resort, were these things regulated more by reason and less by fashion. The unfounded or excessive estimation in which many springs are held, is amusingly caricatured by "Mr. Samuel Slick," whose history of the Wilmot springs in the United States is not destitute of shrewdness, and may amuse my readers:—

"The Wilmot springs are situated on the right there, away up 'onder that mountain a-head on us. They sartinly did make a wonderful great noise three years ago. If the pool of Saloom had been there, it couldn't ahad a greater crowd o' clowns about it. The lame and maimed, the consumptive and dropsical, the cancerous and leprous, the old drunkard and the young rake, the barren wife and sick maid, the larfin' Catholic and sour sectary, high and low, rich and poor, black and white, fools of all ages, sizes, and degrees, were assembled there adrinkin', bathin', and awashin' in the waters, and carryin' off the mud for poul-



tices and plaisters. It killed some, and cured some, and fool'd a nation sight of folks. Down at the mouth of the spring, where it discharges into a stream, there is a soft bottom ; and there you'd see a feller standing with one leg stuck in the mud ; another lying on a plank, with an arm shoved into the ooze up to the shoulder ; a third asittin' down, with a mask o' mould like a gypsum cast on his head ; others with naked feet spotted all over with the clay, to cure corns ; and these grouped ag'in *here* with an unfortunate fellor with a stiff arm, who could only thrust in his elbow ; and *there* with an other sittin' on a chair adanglin' his feet in the mire to cure the rheumatis ; while a third, sunk up to his ribs, had a man apourin' water on his head for an eruption, as a gard'ner waters a transplanted cabbage-plant, all declarin' they felt better, and wonderin' it had'nt been found out afore. It was horrid, I tell you, to see folks makin' such fools of themselves. \* \* \*

“The road was actilly covered with people. I saw one old goney, seventy years of age, stuck in a gig atween two mattresses, like a carcass of mutton atween two bales of wool in a countryman's cart. The old fool was agoin' to be made young, and to be married when he returned home. Folks believed everything they heerd of it. They actilly swallowed a story, that a British officer that had a cork leg bathed there, and the flesh grewed on it, so that no soul could tell the difference atween it and the nateral one. They believed the age of miracles had come ; so a fellor took a dead pig and throw'd it in, sayin', who know'd, as it cured the half dead, that it wouldn't go the whole hog.



That joke fixt the Wilmot springs: it turned the larf against 'em ; and it was lucky it did, for they were findin' springs gist like 'em everywhere. Every pool the pigs had ryled was tasted, and if it was too bad for the stomach, it was pronounced medicinal. The nearest doctor wrote an account of it for the newspapers, and said it had sulphur and saltpetre in it. At last they exploded spontaneous ; the sulphur, saltpetre, and burnt brans went off of themselves, and nothin' has ever been since heerd of the Wilmot springs."

I have not occupied much space in stating the exact distances of the spas from one another, or from the principal cities, nor in enumerating the hotels ; such information is foreign to the purpose of my work, and may be found, in a more complete and systematic form than I could have presented it in, in Murray's "Hand-Book of Germany," to which I have much pleasure in referring my readers, as a work by far the best of its kind, and one on the general correctness of which perfect reliance may be placed. It is not, of course, quite free from inaccuracies, although I found but very few in it while using it when in Germany, where it proved of great service to me.

## CHAPTER IV.

## OLD AGE.

*Inde senilis hiems tremulo venit horrida passu,  
Aut spoliata suos, aut, quos habet, alba capillos.—OVID.*

THOUGH the arrival of old age may, by attention to the natural laws, be long deferred, yet it is inevitable. Sooner or later the signs of decaying vitality appear; and constantly increasing in number and force, they speedily prepare man for tenanting the grave.

This is a critical period—one in which the slightest error or accident may extinguish the feeble spark of life, and one, therefore, in which the greatest care is necessary. It will be my object to furnish such general rules as may enable those who have reached old age to enjoy it as long as possible, and to guard against whatever might endanger their safety; for though thus precarious, the existence of the aged may yet, by proper attention, be rendered so comfortable and happy, as to be still worth some pains to preserve it; indeed, to many this period of life is that in which the largest amount of the truest happiness is experienced.

Extremes meet. The physiological condition of the infant and that of the aged are in many respects alike. The organs of the infant are undeveloped, or have not

acquired strength ; those of the aged have either wholly decayed, or have lost their former vigour : the result is almost identical ; consequently the treatment of the young is in many cases suitable for the old.

But there are also important differences between the two extreme periods of life. The period of infancy is one of rapid growth, of great vital and nervous activity : that of old age, on the contrary, is one of decay, one in which all the functions are slow ; the circulation of the blood is carried on languidly, digestion proceeds with difficulty, the mind loses its acuteness, the senses their vigour. While the characteristics of infancy mark it distinctly as one of increase and progression, those of old age as plainly declare it to be the last act of man's eventful history.

These physiological differences render needful corresponding changes of treatment.

And first as to food.

The organs of mastication are imperfect, or wholly wanting, in both the extreme periods of life ; in both, the digestive organs are weak and liable to derangements. Hence most of the rules laid down as to the diet of the young are applicable here.

Broths and other liquid food, with sufficient farinaceous matter, should be taken by the aged ; and all their nourishment should be of the most digestible kind. A moderate proportion of the safest condiments may be used ; for the appetite, becoming more languid, may with advantage be now and then gently stimulated by something piquant. In regard to drink, the use of fermented liquors, more es-

pecially wine, is allowable now, when the system requires an additional stimulus.

But spirituous liquors, always injurious, are peculiarly so to the aged. “If they do appear at first to strengthen those who fly to them for relief, it is but to bring them to a state of weakness almost incurable. Their use should be forbidden at the board where we wish temperance and health to preside. Their flavour may be exquisite; but they owe it to essential oils, or other principles which have a most pernicious influence over the human frame. Thus, then, with the exception of some cases of sudden debility, to dispel which a brisk stimulant is necessary; or some slow disorders, whose treatment requires that nature should be powerfully urged; in a word, excepting some habitual dispositions of a sluggish temperament, where life languishes when no longer kept up by artificial stimulants,—I say, with these exceptions, the use of spirituous liquors is useless, dangerous, and even fatal.”\* They ought, as I have already said, to be regarded as medicines; and therefore their use should be regulated by physicians.

All mixtures of food, or variety of dishes at meals, are to be shunned by persons advanced in years, as well as those articles to which they have not been accustomed, or which do not agree with them.

Pork, and perhaps beef, is to be avoided; but mutton, poultry, game, and fish, are well calculated for the aged; and the variety they afford is amply sufficient.

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\* Salgues' Rules for Preserving the Health of the Aged.

Butter and cheese are difficult of digestion. If eaten to excess, or if not of the best kinds, they increase the costiveness to which old persons are subject.

Fruits, when thoroughly ripe, are harmless ; well-cooked vegetables should form a large part of the food of the aged.

During meals, weak malt liquor is better suited for them than wine.

It is certainly more healthful for old people to eat three or four times a day, than to make one full meal only. They should not eat animal food oftener than once in the day. The stomach will digest a dinner, when breakfast and supper have been light ; but if the digestion of one meal be not completed before another is taken, there is little chance of either being properly disposed of.

A few remarks on the adulteration of the following articles of general consumption will be of service to the aged, by putting them on their guard against what may be comparatively harmless to the youthful, but often proves highly injurious to those who are feeble or in bad health.

And first of bread.

In large towns the goodness of bread is judged of by its colour, and even the cheaper sorts are required to be very white. Now unless the best flour is used, bread cannot be made of such a colour without using alum ; which bleaches the flour, and thus gives to bread made of inferior or damaged wheat the appearance of the better quality. The quantity of this salt employed is comparatively small ; but it is notwithstanding sufficient to induce constipation in the



weak, either very young or very old, and to aggravate it when already existing : persons thus circumstanced should therefore abstain as much as possible from eating baker's bread, using in its stead home-made or brown bread.\*

Beer is the favourite beverage of the immense majority of the English people ; and if no other ingredients were used in its composition than those which the law permits, viz. malt and hops, it would be a nourishing and wholesome as well as favourite liquor. But this unfortunately is not the case. Beer is mixed with a large proportion of water ; and a great number of drugs, more or less deleterious, are employed to make the mixture resemble genuine beer in its sensible qualities, at a smaller expense than malt and hops can be obtained for. One of these ingredients is a composition of extract of quassia and liquorice-juice, which goes by the name of “ multum,”

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\* The Parisian bakers are said to adulterate their bread with gypsum ; and the Germans make use of an article called mountain, or bread-meal, which consists of the silicified remains of the *Campy Lodiscus Clypeus* for the same purpose, as was conclusively shewn by Mr. Ross by means of his achromatic microscope, at the Royal Institution. These animalculæ were discovered by Professor Ehrenberg, and have been extensively used in Germany to adulterate bread. They are not wholly destitute of nutritive matter, the gelatinous substance of the animal in some few specimens not being greatly changed ; but a very large proportion of the material thus introduced into this essential article of food is pure silica, a mineral which is something worse than so much finely powdered glass.

and is very extensively employed. Of a worse description than this are those adulterations which are intended to make the beer *heady*, and thus give to weak liquor the appearance of strength. For this purpose a variety of narcotics is used, such as *cocculus indicus*, *nux vomica*, &c. In addition to these, several other substances are employed in the adulteration of beer; for instance, sulphate of iron, wormwood, capsicum, &c.\* It should be observed, that the greater number of these illegal adulterations are supposed to be perpetrated, not by wholesale brewers, but by the publicans, who in many cases retail the beer at a lower rate than they purchase it wholesale. It is to be feared that, in spite of the numerous heavy fines imposed upon persons found guilty of such practices, they are still carried on to a considerable extent; at least, it is difficult, if not impossible, in some parts of London, to procure good genuine beer. I may mention, as a proof of the extent to which the adulteration of beer is carried, that there is a class of men called brewers' druggists, whose business it is to prepare the compounds for brewers and publicans.

Ale is made of pale malt, and is frequently adulterated with several of the articles used for porter, as well as with opium, tobacco, grains of paradise, &c. Stale or sour ale is converted into mild ale by the admixture of prepared chalk, soda, or carbonate of potash; and to give new all the appearance of old liquor, oil of vitriol is employed.

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\* Accum.

Now there can be no doubt that a beverage containing even minute quantities of such articles as those above enumerated, must be detrimental to health; and as the law has hitherto proved unequal to the task of preventing their employment, all who regard their health, especially invalids, should drink home-brewed beer, or procure their porter direct from the brewers. And here I cannot but observe that the abolition or reduction of the malt-duty would be a great boon to the community. The inducements to adulterate malt liquors would thereby be much diminished, and private persons would then be better able to brew their own beer, and thus escape the hazard of consuming what is frequently little better than a slow poison. It has been frequently noticed of late, that London porter is becoming worse and worse; yet we seldom hear of convictions for the offence of adulteration. Some strenuous measures ought to be forthwith adopted for the repressions of the evils in question.

Few articles are more commonly and largely adulterated than wine. Being a foreign product, many of those who consume it in this country are unable to distinguish the adulterated from the genuine. Many of the substances used in doctoring wine (as it is termed) are of the most pernicious nature, and cannot fail to prove highly injurious. Of this truth, not a few striking and appalling proofs have from time to time occurred. Port and sherry, the wines commonly drunk in England, are those most liable to adulteration, and unless known to be genuine, should not be taken by the aged. What, indeed, can be expected

of port wine sold for a guinea a dozen ? which it not unfrequently is at public auctions. Port is mixed with water, and adulterated with alum, oak-bark, and other astringents, for the purpose of imparting the flavour of the genuine wine ; and with logwood and alkanet root, as the means of colouring it. Spirit of wine is also employed to give strength to the compound. Sour sherry is adulterated with acetate of lead, for the purpose of neutralising its acidity ; and when thick, is fined by gypsum, and is then often passed off as good genuine wine. Other foreign wines are frequently adulterated in various ways, which chemical analysis alone can detect. Our home-made wines, such as grape, currant, or gooseberry, if properly made, with sufficient quantities of fruit and sugar, and kept long enough, are far superior to the common Spanish and Portuguese wines as made up for the London market. In my opinion, the most wholesome wines, both on account of their original qualities, and because they are comparatively little adulterated, are the light French and German wines. The reduction of the duty on these wines is much to be desiderated—at present they are too expensive for general consumption ; so that many are compelled to put up with an unwholesome, and at the same time high-priced beverage, or with the home-products of ardent spirits, on which latter a tax of the same amount as those removed from malt, hops, and wine, might very beneficially be imposed. Meanwhile, let the aged drink moderately, and of the best description of wines.

Perhaps few articles are more adulterated than brandy,



rum, and gin. A false strength is frequently given to weak liquor by infusing in it cayenne pepper, which imparts to brandy or rum an extremely pungent taste ; burnt sugar is also employed to colour these two liquors. Gin is adulterated by the mineral acids, and is frequently quite poisonous.

Tea, it is well known, is frequently mixed with the leaves of the sloe, ash, or elder ; in the preparation of which, various hurtful substances are employed. Log-wood is used to die a counterfeit black tea ; and the substitute for green tea is coloured by means of Dutch pink and verdigrise, the latter a deadly poison.

The principal cause of the general adulteration of tea is undoubtedly its high price, which is mainly to be attributed to the fact that the Chinese are the only people from whom it can at present be procured, the wayward arbitrariness of whose government renders our commerce with them exceedingly uncertain and precarious. A statement has recently been made public, which gives us hopes that we shall soon cease to be entirely dependent upon China for our supplies of this luxurious necessary. It appears that in 1835 it was discovered that the tea-plant is indigenous in Upper Assam, a country bordering on the Himalaya mountains, and forming part of our recent acquisitions from Birmah. Whole forests of tea have been found there, which have been surveyed by order of the Indian government, and some of their produce has been actually received in this country ; a sample of which I have tasted, and, considering the rude manner in which it



is said to have been prepared, it appears to be of very good quality. With the assistance of Chinese tea-cultivators and manufacturers, there is every prospect of being furnished with a portion, at least, of our consumption of tea, freed from the trammels to which our intercourse with China is subjected by its jealous government, and at a much lower price.

Coffee is adulterated with ground beans and peas, and sometimes also with fine gravel.

The best way to ensure genuine tea and coffee, is to purchase them at respectable houses, and to pay the higher prices for them. If any articles are adulterated, it may be taken for granted that they are the cheaper sorts. As to coffee, it should be purchased unground; it cannot then so well be adulterated.

Confectionery, fish-sauces, oil, pepper, mustard, pickles, vinegar, &c., are frequently adulterated, the latter two with sulphuric acid, which renders them highly injurious to the coats of the stomach.

It may here be observed, that the evils of adulteration are much increased by the use of copper utensils in preparing many articles of food.

Drugs are frequently adulterated, especially those most extensively used, such as rhubarb, bark, jalap, valerian, &c. It is not unusual for the drug-grinder to return a much larger quantity than he received. Professor Thomson, in his examination before the Select Committee on the Poor-Law Amendment Act, stated that frauds are often practised in the drug-market. Among other ex-

amples, he mentioned that calomel often consists of little more than sulphate of barytes, which is an inert substance ; that in scammony the adulteration is even more remarkable, an immense quantity of chalk being found in it, so that the active ingredient it contains often varies from  $8\frac{1}{2}$  to  $81\frac{1}{4}$  per cent ; and that Peruvian bark, as it comes from the hands of the drug-grinder, consists of charcoal, with Venetian red, Carthaginian bark, lignum vitæ, and satinwood ; which mixture was sold about forty years ago by the Apothecaries' Company ; and it was also sent to the army as Peruvian bark. He also said it was known that, on one occasion, twenty chests of the genuine article having been sent to a drug-grinder, he put eighteen chests of extraneous matter to two of the pure bark, and sold the remaining eighteen genuine chests to his own profit.\* From

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\* Since the introduction of the new French and German remedies, many of our former favourite drugs have been laid aside, pathology and the operation of medicines being better understood ; and it would be as well that the pharmacopœia now in use should be remodelled ; many of the medicines, which are still admitted, and have been for the last hundred years, are not in reality of much service, and might be expunged with decided advantage ; other medicines, far more valuable, being substituted in their place. It is to be feared, however, that it will be some time before this necessary alteration is made, for we are too prone to follow in the footsteps of our predecessors, without deviating therefrom, like the disciples of Galen of old, abiding by the routine advocated by their master ; but, if I mistake not, the practice of medicine altogether, in a very few years, will undergo an extraordinary change.

the same authority it appears that ginger is adulterated with 50 per cent of capsicum, sawdust, satinwood, and flour—and sometimes the article sold does not contain more than 30 per cent of ginger; that milk of sulphur often contains one-half its weight of stucco; that aloes, gum arabic, capsicum, cubebs, euphorbium, guaiacum, and storax, are commonly mixed with extraneous substances to the extent of 14 per cent; that opium is adulterated with extract of senna; that jalap is frequently mixed with twenty-eight pounds of barley-meal per cwt, and lignum-vitæ dust is sometimes used; and that the article sold for rhubarb often contains no more than one-half of its weight of rhubarb. The doctor concludes by observing that very little of the genuine article ever reaches the consumer!

Few adulterations are more reprehensible or produce worse consequences than that of drugs. Life is constantly dependent on the prompt application of powerful agents; and if the druggist vends medicines not genuine, the best prescription must prove inefficacious.

The extent to which adulteration of food is carried is one of many proofs of the necessity for a medical police, whose duty should be the prevention of every thing detrimental to the public health. It is strange that England, whose people have the reputation of being excessively cautious respecting their health, should be the only country in Europe where such an institution is unknown, and where consequently we are exposed to constant danger from the adulteration of food, the vending of unwholesome

meat\* and fish,† the sale of quack-medicines, &c. ; evils which our continental neighbours in a great measure guard against. If we cannot have a medical police, perhaps some good might be effected by the establishment of a Society for the Prevention of the Adulteration of Food, and for the detection and punishment of offences against the life and health of the people.

Persons in high life, and especially those advanced in years, who are in the habit of going to dinner-parties, &c., should set apart one or two days in each week to rest, quiet, and abstinence. It is reported of a late well-known alderman, that he used to have what he called one banyan day per week.

“La vieillesse,” says Rochefoucauld, and says truly, “est un tyran, qui défend, sur peine de la vie, tous les

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\* It is said that butchers frequently wash stale meat with chloride of lime, which gives it the appearance of freshness ; though when dressed it is almost wholly deficient of nutriment, and must be prejudicial to health.

† The inhabitants of the metropolis are, to a considerable extent, protected from the consumption of bad fish by the admirable regulations of Billingsgate, at which market, according to a statement made some time ago to the Lord Mayor by the clerk of the market, there were seized during the preceding year 170,687 single fish, 221 bushels of shell-fish and sprats, and 508 gallons of shrimps. By these measures much disease was prevented ; and the immense public benefit that may be effected by a few able and active officers is in this instance strikingly shewn.

plaisirs de la jeunesse.”—“ Old age is a tyrant, which prohibits, under the penalty of death, all the pleasures of youth.” Habits which might be indulged in with comparative impunity when the system was in its highest vigour, are productive of immediate evils to the weak frames of the aged: whatever I have reprobated, in the previous pages of this book, as hurtful to the young or the mature, is especially to be avoided by the aged. Others may, with some appearance of reason, hope to escape the penalties of their imprudence; but for those who are on the brink of the grave, and whom the slightest departure from the dictates of reason may precipitate into it, to cherish any such delusive expectations, is inexcusable: such vain dreams must speedily be dissipated by the stern realities of retributive suffering.

“ Discern of the coming on of years,” says Lord Bacon, “ and think not to do the same things still; for age will not be defied. Beware of sudden change in any great point of diet; and if necessity enforce it, fit the rest to it. To be free minded and cheerfully disposed at hours of meat, and of sleep, and of exercise, is one of the best precepts of long lasting.”

Having already pointed out the physiological reasons for cleanliness, and for a constant provision of pure air,—reasons which prove that attention to these things is indispensable at every period of life;—I have here only to shew that their importance is not less to the aged than to those in the earlier stages of existence.



The whole system of the aged being one of decay, it may easily be believed that the refuse matter ejected from it is more impure, and therefore more likely to be hurtful, if suffered to remain in contact with the body, than in the time of youth; hence frequent ablution is desirable. It will not only prevent diseases of the skin, but impart freshness and elasticity to the whole economy.

Baths of any kind are so powerful in their operation that they ought not to be taken by the aged without the concurrence of their medical advisers. Where, however, they are permitted, tepid baths are productive of the most grateful effects; they restore softness and elasticity to all the parts, and assist the play of the joints: they are peculiarly suited to old persons of a dry, irritable constitution, or sedentary habits. Phlegmatic old men, those who expectorate much, or are troubled with painful cramps, will also derive much benefit from them.

“On quitting the bath, certain precautions should be used, a neglect of which might cause very different results from those sought. Every attention should be used to preserve the skin from the effects of the atmosphere, to which it is at this moment very sensible and susceptible. To gain this end, the body should be dried as quickly as possible, and speedily and warmly clad. Dry rubbing over the whole body, before the fire, will assist the good effects of the bath. Strict attention to these points is especially to be observed in cold damp weather.”\*

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\* Salgues on the Health of the Aged.

The lungs are excreting organs, and perform the same kind of office as the skin; hence, for the reasons above given, there is a great difference between the pure breath of the young and that of those advanced in years; so that there is a greater necessity for a constant supply of fresh air being admitted into the rooms of the aged; who ought, for this reason among others, to be much in the open air; for even if unable to engage in active exercise, they may at least often enjoy with safety this attendant advantage.

In relation to clothing and temperature at this period of life, I have little to say that has not been already said on those subjects in the chapter on infancy. The natural heat of the aged is small, and easily diminished. Their dress, therefore, should combine warmth with lightness. Woollen stuffs are best adapted for them; they preserve the animal heat, which is ever escaping; they concentrate it about the body, whilst they excite its development in a greater or lesser degree. They have also the great advantage of exciting perspiration, and of maintaining its regularity.

Sitting constantly near the fire is a hurtful practice to both old and young; and the habit of standing or sitting with the back to it is still more so. Obstinate nephritic complaints have frequently been brought on by this means.\*

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\* A case of this kind came under my own observation some time ago. A merchant, whom I was attending for a disease of the eyes, used to sit with his back to the fire, in order to avoid its glare: a

From the diminished force of the circulation, a common complaint of the aged is coldness of the extremities ; nothing will tend more to remove this evil than stout woollen hose, which should be worn all the year round, and warm and thick, yet soft and easy shoes. Tight shoes and boots, by preventing the free circulation of the blood, are the causes of many evils in every period of life ; especially they produce corns, bunions, &c., which not only inflict pain, but prevent the taking of exercise.

The bed-clothes of old persons should be of considerable warmth ; from neglect of this they sometimes, in very cold weather, have been found dead in their beds.

All parts of the dress should fit loosely ; let not attention to fashion induce those who may safely disregard it, to compromise their health or life by bandaging the body with close-fitting garments. Especially should the upper parts be free from pressure. A high and tight stock has often caused apoplexy ; costiveness is frequently produced by tight belts and waistbands. Persons subject to headaches should take off their stocks, and all other close-fitting articles of dress, as soon as they return home.

The practice of wearing tight Mackintosh coats is injurious to health, as they impede the carrying off of the perspiration, which condenses on the inner surface of the dress, and, cooling, gives rise to colds and rheumatism.

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nephritic complaint was the consequence, respecting which medical advice had in vain been obtained ; but which speedily disappeared, when, having been informed of its cause, he discontinued the habit which produced it.

All vicissitudes of temperature are carefully to be avoided. In changing the winter-dress, the utmost caution is requisite. The alteration must not be made until there is no longer any probability of a sudden variation of temperature; and the warmer clothing should be resumed as soon as the summer has departed.

I may here remark, generally, that the tendency of persons living in the metropolis is at present to excessive clothing. The devices for defending men from every approach of the elements are innumerable: boas, fur-coats, French clogs, Mackintoshes, respirators (which are at all times bad), pea-jackets, are a few of these modern inventions; which, besides, are not employed most by those who would seem to stand in greatest need of them—the aged—but by the young and vigorous, who, were it not for bad habits, would in most cases be sufficiently protected by their healthiness from the attacks of the elements. In the public conveyances it is no uncommon thing to see robust young men muffled up in furs, &c. as closely as if they were in company with Franklin or Ross at the North Pole, instead of in our temperate climate. The aged, who have been brought up on a less effeminate plan, are, on the contrary, sometimes too regardless of exposing themselves; but their mistake is less productive of evil than the opposite one.\*

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\* In confirmation of this I may observe, that cold climates appear to be favourable to longevity. In Norway, of 6927 who were buried in 1761, 63 had lived to the age of 100; and in Russia, of 726,278 persons who died in 1801, 218 were 100 years of age, and

By observing these precautions, colds, which are exceedingly dangerous to the aged, may generally be avoided. But the best preventive measure is *attention to the general health*. Healthy persons seldom catch cold; many never air their linen, and are quite regardless of damp sheets, or wet boots, with complete immunity from those consequences which would inevitably result to the unhealthy and delicate. Some classes of labouring men, such as brickmakers, &c., are exposed to all the inclemency and vicissitudes of our climate, and yet scarcely ever suffer from catarrh. Indeed, I am of opinion, that “colds” comparatively seldom arise from mere exposure to wet,—the cause to which in this country they are almost universally referred. If such exposure does produce this consequence, it is because there was some predisposing cause in the system of the individual attacked. The French, in consequence of being much in the open air, rarely catch cold, and frequently manifest surprise when they hear Englishmen express their fear of colds, and inquire what this dreaded calamity is—so little acquaintance have they with it.

Cold winds, damp vapours, fogs, &c., are exceedingly

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220 above it, of whom four are said to have been above 130 years old. In the diocese of Aggherus, in Norway, there existed, in the year 1763, 150 couples who had lived together upwards of 80 years. Excessive cold, however, is prejudicial to long life: in Iceland and Siberia, men attain at the utmost to the ages only of 60 or 70.



hurtful to the aged ; and hence it is improper for them to go abroad early in the morning, or at night, except in the midst of summer, when the cheerfulness and freshness of nature may render an early walk highly beneficial.

Exercise being, as I have fully shewn, of first-rate importance to the preservation of the health of every preceding period of life, it is not to be supposed, notwithstanding the great changes that have taken place in their frames, that it is useless to the aged. Exercise proportioned to the powers of the body is as essential to the health of the old, as to that of the robust and active youth.

There is little fear that the voluntary exertion of the aged will exceed the requisite quantity ; on the contrary, they are too prone to discontinue all exercise, and remain shut up in warm rooms, as if they imagined the least movement would be fatal.\* Such habits cannot fail to produce many diseases. Sir John Sinclair truly observes, that “ whoever examines the accounts handed down to us of the longest livers, will generally find that to the very last they used some exercise, as walking a certain distance every day, &c. This is commonly mentioned as something surprising in them, considering their great age ; whereas

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\* Cicero constantly spent a portion of every day in walking ; and Milton, when no longer able to take exercise by himself on account of his blindness, had a machine constructed in his room in which he used to be swung.

the truth is, that their living to such an age without some such exercise would have been the wonder.”\*

Walking is the kind of exercise best fitted for old persons. It is gentle—it calls into play all the muscles, and may easily be regulated according to the wants of the system.

Carriage-exercise is comparatively inefficient. Hung on perfectly elastic springs, and rolling over smooth and level roads, but little of the motion of a carriage is communicated to the bodies of those it contains. Persons riding in carriages for exercise should sit upright, and not loll at full length, as is too much the practice, especially with ladies.

When the state of the weather will not permit out-door exercises, there are many in-door exercises that may be beneficially taken. The late Sir Walter Farquhar informed me that when precluded by age from going abroad, he used to walk five miles a day in his own house.

But great exertion is far from being advantageous to the aged. It causes a rapid loss of heat, exhausts the vital powers, and often gives rise to aneurismal affections. Those who, in their old age, are compelled to labour for their subsistence, are soon cut off. This is the season of

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\* It has been said, that houses are the graves of the living; and certainly, if this is true, a very large portion of our countrymen and women are buried alive. The French ridicule our in-door propensities, by saying that our principal amusement, especially on Sundays, consists in staying at home and looking out at window.

*rest* ; during which, in a well-constituted state of society, there would be no necessity for action of any kind, except such as the health requires.

Persons advanced in years are prone to taciturnity ; and it is to this circumstance that the diseases of the lungs, which so often carry them off, are in a great measure to be ascribed. The lungs need exercise as well as the muscles ; and by reading aloud, by singing, and conversation, they may be preserved in a state of health. The advanced age of schoolmasters, and other public speakers, may perhaps be attributed to the exercise given to their lungs. Hence the importance to the aged of preserving an erect posture, to give their lungs full play.

During this period of life much sleep is needed ; the nervous powers, easily exhausted, must be renewed ; and nine or even ten hours of sleep may be allowed, except to the corpulent, for whom a less period should suffice. If there is any difficulty in procuring sleep, friction will, in most cases, remove it.\* Too many persons, under these circumstances, seek relief from opiates, and thereby hasten their long sleep.

The hours of retiring to rest should be early and regular. It has been said, that if a man takes the proper quantity of sleep, it is of little consequence at what time it is

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\* A soft flesh-brush is the best means that can be employed for this purpose ; the harsh horse-hair gloves, lately so much used, frequently produce disagreeable irritation of the skin, and an unequal degree of heat. For an account of the structure and functions of the skin, see the previous part of this work.

taken ; and some persons in high life, acting upon this false maxim, often rise at three in the afternoon, and go to bed at four in the morning ; and consequently rarely see the sun for months together. Few plans can be imagined more effective than this for shortening life.

Theatres, concerts, and late evening parties, are to be eschewed. Attendance at them is, on many accounts, highly destructive to the aged. The vitiated air, the sudden and great change of temperature, to which it exposes them, act upon them with a vastly greater power than upon the younger and more vigorous. Even young persons should not go into company every night ; the excitement and late hours to which they expose themselves by so doing soon change their youth into the appearance of old age ; for no constitution can long endure such treatment. A London season in high life, constantly spent in company, is generally sufficient to undermine the health of young ladies on first coming out, if they are not very careful : they should therefore make a point of having two or three days of rest and quietness in each week. Music and dancing are very well in their way ; but when indulged in to excess are highly injurious both to mind and body.

The choice of a dwelling is a matter of great importance to every one, but especially so to the aged. An elevated, yet sheltered situation, removed from large bodies of water, and from marshes and other wet grounds, is to be preferred.

M. Quetelet, in his work entitled *Statistique du Département de l'Ain*, has obtained the following as the result of his inquiries respecting the influence of situation upon health and life :

	One Death annually in	One Marriage annually in	One birth annually in
In the mountainous parts .	38·3 inhab.	179 inhab.	34·8 inhab.
On the banks of rivers . .	26·6 —	145 —	28·8
On the level parts sown with corn . . . . .	24·6 —	135 —	27·5
In parts interspersed with ponds and marshes . .	20·8 —	107 —	26·1

This table clearly shews the fatal effects of the proximity of marshes and stagnant waters.\*

Writers are divided upon the relative advantages of a town and of a country residence ; some ascribing to one all necessary good qualities, and others asserting the direct contrary. There are, doubtless, inconveniences attending either ; but I am inclined to think that for the aged the suburbs of a town are preferable to the exposed country.

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\* Of the increased mortality produced by such neighbourhoods, M. Villermé cites the following example :—In the Isle of Ely, in Cambridgeshire, during the interval from 1813 to 1830 inclusive, out of 10,000 deaths which occurred between infancy and the most advanced periods of life, 4,731 were before the completion of the age of ten ; whilst there were only 3,005 throughout all the other agricultural districts of England. In the Isle of Ely also there were 3,712 deaths between the ages of ten and forty, out of 10,000



Pomfret, in his well-known poem entitled "The Choice," has happily expressed the more important points to be attended to in the selection of a dwelling: and as his "choice" in this respect is peculiarly fitted for the aged, I shall extract the passage:

"Near some fair town I'd have a private seat,  
Built uniform; not little, nor too great;  
Better if on a rising ground it stood,  
On this side fields, on that a neighb'ring wood;  
A little garden, grateful to the eye,  
And a cool rivulet runs murmuring by;  
On whose delicious banks a stately row  
Of shady limes or sycamores should grow;  
At th' end of which a silent study placed,  
Should be with all the noblest authors graced."

All round London there are situations where the advantages of a town and country residence may be enjoyed together; and London is, doubtless, the healthiest city in the world. When I say this, I of course do not mean every part of London; there is a wide difference between

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which took place between the age of ten and extreme old age, and only 3,142 in the other agricultural districts, which are not marshy like the Isle of Ely. This, however, is merely a local influence, and does not apply to the town of Cambridge. In proof of which Dr. Haviland informs me, "that its climate is mild, and the soil fruitful: the town stands on a bed of gravel, which makes it dry, and comparatively free from fevers, as the records of our hospital shew."

Brick Lane in the City, or Maze Pond in the Borough, and the elevated situations near Grosvenor Square, Oxford Street, and the Regent's Park. An old military friend of mine, now dead, used to prefer London to any other place of residence, and gave the following reasons for his preference:—In winter London is warm, in spring it is gay, in summer it is shady, and in autumn it is quiet.

The last subject to be noticed is, the regulation of the mind in this period of life.

The mental faculties partake of the decay of the corporeal powers; and the exercise of the intellect in old age must be of the most gentle and unexciting kind. It is no longer equal to the performance of hard labour; if it is compelled to toil, as in its time of perfection, it soon breaks down beneath the imposition, and refuses any longer to serve a master so inconsiderate.

The aged should abstain from engaging in any enterprise, whether commercial, political, or literary, which may require much mental labour or occasion anxiety. They should eschew all causes of excitement with a determination not to be shaken, founded on the knowledge that they tend directly to shorten life, and often bring on insanity.\*

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\* These observations apply to persons in the more vigorous periods of life, as well as to the aged; as the following passage from Sinelair's Code of Health well shews:—"The engrossing and harassing nature of their pursuits, and, in Great Britain, perhaps the unseasonable hours at which legislative business is carried on in Parliament, seem to wear out life. A retrospect of the last thirty years presents us with a list of not fewer than seven

Happily for man, when old age arrives, his passions lose much of their strength, and seldom disturb the serenity of the soul. Where this is not the case, the most vigorous exertions should be made to weaken their violence, and reduce them into subjection to the reason.\*

What can be more pitiable than to behold a human being, whose life is scarcely worth a year's purchase, still immersed in the pursuits of business, still striving to amass wealth, and neglecting the enjoyments which a long life of labour has placed at his command, that he may add a

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distinguished statesmen who have sunk, almost in the prime of life, under the turmoil and anxieties of their public duties, viz. Pitt, Fox, Whitbread, Romilly, Liverpool, Castlereagh, and Canning." The resumption of the early habits of our ancestors in all our affairs, whether of business or amusement, would be productive of great benefit to the general health.

\* Indulgence in any passion is often fatal to the aged; by determining too large a quantity of blood to the brain, it not unfrequently occasions apoplexy. Anger is perhaps the passion most common to the aged; its destructive effects are strikingly exemplified in the following case. An old naval officer went on one occasion to visit his son; and when, being about to return home, he took up his hat, he found it filled with stones, the work of his mischievous grandson. This circumstance threw him into a great passion, which was increased by the laughter in which his son and daughter indulged at the *mauvaise plaisanterie* of their hopeful heir: he fell down in an apoplectic fit; and though prompt medical aid was procured, he died a few days afterwards, the victim of passion.

little more to the hoard from which he must so soon be separated for ever!

Worse even than this sad spectacle is that of the hoary voluptuary, who, in spite of the warnings which his blunted senses are constantly forcing upon him of approaching dissolution, even at the eleventh hour pursues his sensual gratifications with an eagerness which seems to say, "I must soon leave the world of sense; but before I depart, I will glut myself with its enjoyments!"

Such men are beyond hope—they have no hopes, no conceptions above the low and debasing round to which their ideas have ever been confined; and it is not to be regretted that they must, by their follies or crimes, soon rid the world of their presence.

The moderate exercise of the intellectual and moral faculties conduces much to the happiness and health of the aged. The pleasures of music, poetry, and painting, may yet confer on them many delightful hours; and in the bosom of their families, in the midst of their friends, they may still find objects for the kindly feelings of their nature; and though death is near, they may indulge in a harmless gaiety of spirit, and thereby keep alive the glimmering lamp of life.

The aged are sometimes inclined to melancholy, ennui, timidity, distrust, and fear of death. Such depressing emotions act most injuriously upon those who are subject to them; those who surround the old, and are charged with the care of ministering to their comforts, can do no greater service to them than keeping their sensibility con-

stantly in play, and placing it in the most pleasing and consoling situations. It is also the duty of those thus afflicted to cast off such sentiments. Those only whose youth and manhood have been passed in obedience to the dictates of a pure and elevated morality can reasonably expect such an old age as that of *Adam* in Shakspeare's *As you like it*, who, when "almost fourscore," could describe himself thus :—

" Though I look old, yet I am strong and lusty :

For in my youth I never did apply

Hot and rebellious liquors in my blood ;

Nor did not with unbashful forehead woo

The means of weakness and debility :

Therefore my age is as a lusty winter,

Frosty, but kindly."

*Act ii. Sc. 3.*

I have in the foregoing pages described old age as it is generally presented to our observation ; not as I think it might and ought to be.

There is in reality nothing in this period of life to occasion gloom and despondency, provided the preceding periods have been passed in accordance with the laws of God and of nature. Those persons whose conduct has been beneficent, whose motives have been pure, and whose habits have been temperate, may safely look forward to an old age of happiness : respected by their juniors, free from the strifes and cares of the world, and happy in the recollection of a well-spent life, they enjoy a calm peacefulness which more than compensates for the loss of some of the pleasures of youth. And how gratifying a sight is



it to see the white-headed, venerable patriarch displaying the kindness and cheerfulness of the young, and diffusing around him joy and happiness! It has been my privilege to be personally acquainted with some such old men. The late Sir Isaac Heard, Garter King-at-Arms,—the Earl of Harcourt,—and Viscount Carlton,—all advanced in years, were yet of lively, cheerful dispositions, as I had many opportunities of observing during my professional attendance upon them. And two old ladies of my acquaintance, one of them aged 79, and the other 87, had better spirits than many young ladies in their teens.

The following account of persons remarkable for longevity will appropriately conclude this book, and may perhaps be interesting to those who desire to attain old age.

*Cardinal de Salis, aged 110 years.*

In February 1786 died, at the age of 110 years, in the full enjoyment of every faculty except strength, Cardinal de Salis, archbishop of Seville. He used to tell his friends, when asked what regimen he observed, “ By being old when I was young, I find myself young now I am old. I led a sober, studious, but not a lazy or sedentary life. My diet was sparing, though delicate; my liquors the best wines of Xeres and La Mancha, of which I never exceeded a pint at any meal, except in cold weather, when I allowed myself a third more. I rode or walked every day, except in rainy weather, when I exercised for a couple of hours. So far I took care of the body; and as to the mind, I endeavoured to preserve it in due temper by a scrupulous

obedience to the Divine commands, and keeping, as the apostle directs, a conscience void of offence both towards God and man. By these innocent means I have arrived at the age of a patriarch, with less injury to my health and constitution than many experience at forty."

*Mr. Robert Raurnan, aged 118 years.*

In 1823 died Mr. Robert Raurnan of Irthington, near Carlisle, at the age of 118 years. From early youth he had been a laborious worker, and was at all times healthy and strong, having never taken medicine, nor been visited with any kind of illness, except the measles when a child, and the whooping-cough when above 100 years of age. During the course of his long life he was only once intoxicated, which was at a wedding; and he never used tea or coffee, his principal food having been bread, potatoes, hasty-pudding, broth, and occasionally a little meat. He scarcely ever tasted ale or spirits, his chief beverage being water, or milk and water mixed. His vigour never forsook him till far advanced in life; for in his 108th year he walked one day 16 miles without the help of his staff. On the day before his death, he was seized with illness; the next day he grew weaker and weaker as the day declined, but experienced no sickness, and died peaceably in the evening.

*Peter Garden, aged 131 years.*

He was a native of Aberdeenshire. He lived in that country, and died on the 12th January, 1775. Little is known of his history. He was employed in agricultural

labours nearly until his death ; and preserved his looks so well, that he appeared, it is said, to be a fresher and younger man than his son, when both were advanced in years.

*The Countess of Desmond, aged upwards of 140 years,*

Was daughter of the Fitzgeralds of Drumona in Waterford ; and in the reign of Edward IV. married James, fourteenth earl of Desmond. She lived to the age of some years above 140, and died in the reign of James I. It appears that the Countess retained her full vigour in a very advanced period of life : the ruin of the house of Desmond reduced her to poverty, and obliged her to take a journey from Bristol to London, to solicit relief from the court, at a time when she was above 140. The Countess is mentioned by Sir Walter Raleigh in his History of the World, and by Bacon in his work on Life and Death.

*Thomas Parr, aged 152 years,*

Was born in Shropshire, in 1483, in the reign of Edward IV., and died in the Strand, London, in 1635. He lived in the reigns of ten kings and queens, and was buried in Westminster Abbey. He seems to have been a man of a somewhat different constitution from the rest of the human species ; for a person who had seen him describes him thus :

“ From head to heel his body had all over

A quickset, thickset, nat’ral hairy cover.”

A short time before his death he was brought up to

London by the Earl of Arundel, and carried to court. The king (Charles I.) said to him, "You have lived longer than other men: what have you done more than other men?" He replied, "I did penance when I was a hundred years old."

His rules for longevity are these: "Keep your head cool by temperance, your feet warm by exercise; rise early, and go soon to bed; and if you are inclined to be fat, keep your eyes open, and your mouth shut;" or in other words, "Be moderate both in your sleep and diet." If Parr practised the recommendations here expressed, it is not altogether surprising that he attained so great an age; inasmuch as they are in strict accordance with physiological principles; and it will be seen that they embrace some of the most important truths enunciated in this book.

When his body was dissected, all his inward parts appeared so healthy, that, if he had not changed his diet and air, he might probably have lived a good while longer. An account of the person and dissection of Parr was written by the celebrated Harvey.

*Henry Jenkins, aged 169 years.*

The birth-place of Jenkins is unknown; but there is satisfactory evidence of his great age. When between ten and twelve he was sent to North Allerton with a horse-load of arrows, previous to the battle of Flodden, which was fought on the 9th of September, 1513. He died on the 8th day of December, 1670. He had been oft

sworn in Chancery and in other courts to above 140 years' memory; and there is a record preserved in the King's Remembrancer's Office in the Exchequer, by which it appears that Henry Jenkins of Allerton-upon-Swale, labourer, aged 157, was produced and deposed as a witness. This deposition was taken in April 1665, at Kettering.

Little is known of his mode of living, excepting that towards the last century of his life he was a fisherman, and not only used to wade the streams, but actually swam rivers after he was full 100 years of age. When he could no longer follow the occupation of a fisherman, he went begging about Bolton, and other places in Yorkshire. His diet is said to have been coarse and sour.

*Sarah Rovin, aged 164, and John Rovin, aged 172.*

The only account we have of this venerable pair is an inscription upon a picture of them, dated August 25th, 1725, which states that they had been married 147 years, and were both born and died at Hadooia in Temeswaer Banels (Hungary); that their children, two sons and two daughters, were all then alive: the younger son was 116 years of age, and had two great grandsons, one in the thirty-fifth, and the other in the twenty-seventh year of his age.

*Petratsch Tortan, or Czartan, aged 185.*

In a Dutch dictionary, intituled, "Het algemeen Historich Woonderbok," &c., there is an account given of this ancient personage, of which the following is a translation.



“Czartan was born in 1537 at Kofrock, a village four miles from Temeswaer, in Hungary, where he had lived 180 years. When the Turks took Temeswaer, he kept his father's cattle. A few days before his death, he walked, with the assistance of a stick, to the post-house of Kofrock, to ask charity of the travellers. He had but little sight, and few of his teeth remained. His son, 97 years of age, was born of his third wife. Being a Greek by religion, the old man was a strict observer of fasts, and never used any food but milk and cakes, together with a good glass of brandy. He had descendants in the fifth generation, with whom he sometimes sported, carrying them in his arms. He died in 1724. Count Wallis had a portrait taken of him, having fallen in with him some time before his death. The Dutch envoy, then at Vienna, transmitted this account to the States-General.”\*

*Thomas Carn, aged 207 years.*

Of this venerable individual the following account is

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\* I have in this chapter, as my readers will perceive, quoted frequently from the Code of Health of the late Sir J. Sinclair, with whom I had the pleasure of being personally acquainted, and who, a short time before his death, presented me with a copy of his work, accompanied with a letter, in which he speaks in flattering terms of my Treatise on the Eye. The worthy baronet's Code of Health is almost the only work of importance in our language which contains much information on the health of the aged; and he has collected in it many curious and interesting facts, some of which I have thought would not be unacceptable to my readers.

given in Taylor's Annals of Health and Long Life. "The most remarkable instance of longevity which we meet with in British history is that of Thomas Carn, who, according to the parish register of St. Leonard, Shoreditch, died on the 28th of January, 1588, at the astonishing age of 207 years. He was born in the reign of Richard II., anno 1381, and lived in the reigns of twelve kings and queens; namely, Richard II., Henry IV. V. and VI., Edward IV. and V., Richard III., Henry VII. and VIII., Edward VI., Mary, and Elizabeth. The veracity of this statement may be readily ascertained by any person who chooses to consult the above register."

It is remarkable, that of these ten persons only two belonged to the higher ranks of society, all the rest being dependent for their subsistence on their own labour. Judging from this fact, it would appear that a condition of toil and of comparative poverty is more favourable to longevity than one in which there is no demand for exertion, and in which temptations to disobedience of the natural laws abound. But it is by no means necessary that the possession of wealth should be destructive of life. On the contrary, it certainly would, if properly employed, conduce much to the prolongation of life; and the fact that it does not generally do so, only proves how much ignorance and heedlessness there must be on the subject of health among the rich, or rather must *have been*; for persons in the higher ranks certainly take more care of their health now than they did twenty or thirty years ago, a striking proof of which is afforded by the following list of

the names and ages of some of the oldest British peers now living. Perhaps there is no other body in the world, of such a limited number, which can produce an equal list of men who have attained such venerable ages:—

Abercromby, Lord . . . 72	Lonsdale, Earl . . . 85
Abergavenny, Earl . . . 87	Ludlow, Earl . . . 84
Ailsa, Marquess . . . 72	Lynedock, Lord . . . 92
Anglesey, Marquess. . . 74	Macclesfield, Earl . . . 87
Berners, Lord . . . 80	Manchester, Duke . . . 74
Besborough, Earl . . . 84	Manners, Lord . . . 86
Bexley, Lord . . . 76	Maryborough, Lord . . . 79
Bristol, Marquess . . . 73	Mayo, Earl . . . 76
Carbery, Lord . . . 77	Middleton, Lord . . . 73
Cathcart, Lord . . . 87	Mostyn, Lord . . . 74
Colville, Lord . . . 74	Norfolk, Duke . . . 77
Cork, Lord . . . 75	Northwick, Lord . . . 72
Delamere, Lord . . . 75	Plunket, Lord . . . 78
Dinorben, Lord . . . 75	Plymouth, Earl . . . 74
Donegal, Marquess . . . 73	Ponsonby, Lord . . . 72
Dorset, Duke . . . 75	Portland, Duke . . . 74
Dynevor, Lord . . . 77	Rolle, Lord . . . 86
Ferrers, Earl . . . 82	Rossmore, Earl . . . 77
Grafton, Duke . . . 82	Saye and Sele, Lord . . . 73
Grey, Earl . . . 77	Shaftesbury, Earl . . . 74
Gray, Lord . . . 78	Sidmouth, Lord . . . 85
Hamilton, Duke . . . 75	Sinclair, Lord . . . 74
Harrowby, Earl . . . 80	Stamford, Earl . . . 77
Huntley, Marquess . . . 81	Stanley, Lord . . . 76
Leitrim, Earl . . . 74	St. Germain's, Earl . . . 75
Limerick, Earl . . . 84	Strathallan, Lord . . . 75

St. Vincent, Lord . . . 76	Western, Lord . . . 75
Teynham, Lord . . . 74	Westminster, Marquess . 75
Wellesley, Marquis . . . 82	Wynford, Lord . . . 75
Wellington, Duke . . . 72	

The following is a list of some of the most celebrated individuals who have attained what, according to the average duration of life, may be termed old age :—

Madame Dacier . . . 69	Galileo . . . . 78
Vendramini . . . 70	Swift . . . . 78
Linnæus . . . . 71	La Place . . . . 78
Seneca . . . . 71	Cullen . . . . 78
Bishop Van Mildert . . 71	Galen . . . . 79
Bourdaloue . . . 72	Massillon . . . 79
Robertson . . . 72	Samuel Parr . . . 79
Locke . . . . 73	Euripides . . . 79
Dugald Stewart . . . 73	Harvey . . . . 80
Lopez de Vega . . . 73	Thucydides . . . 80
Dr. Curtis . . . 74	R. Bentley . . . 80
Johnson . . . . 74	Juvenal . . . . 80
Jenner . . . . 74	Buffon . . . . 81
Mrs. Chapone . . . 75	Plato . . . . 81
Haller . . . . 75	Count Ludolf . . . 82
Scaliger . . . . 75	Pestalozzi . . . . 82
Usher . . . . 75	Tintoretto . . . . 82
Leonardo da Vinci . . . 75	Goethe . . . . 83
Mrs. Bowdler . . . 76	D'Aubenton . . . 83
Mrs. Siddons . . . 76	Chas. Butler . . . 83
Baxter . . . . 76	Bentham . . . . 84
Sir Everard Home . . . 77	Sir J. Soane . . . 84
Roger Bacon . . . 78	Franklin . . . . 84

Herschel . . . . 84	Lord Stowell . . . . 90
Sir J. Sinclair . . . . 84	Sophocles . . . . 90
Talleyrand . . . . 84	Sir C. Wren . . . . 91
Newton . . . . 85	Hobbes . . . . 91
Anacreon . . . . 85	Bishop Bathurst . . . . 92
Mirabeau . . . . 86	William Hutton . . . . 92
Halley . . . . 86	Adam Fergusson . . . . 93
Dr. Young . . . . 86	Sir Hans Sloane . . . . 93
C. Hutton . . . . 86	Titian . . . . 94
Cassini . . . . 87	Simonides . . . . 98
Lord Eldon . . . . 87	Zeno . . . . 98
Lady R. Russell . . . . 87	Herodian . . . . 100
Rowland Hill . . . . 89	Fontenelle . . . . 100
Mrs. Hannah More . . . . 89	Gorgias . . . . 107
Elizabeth Baxter . . . . 89	Hippocrates . . . . 109

In conclusion : the fact that some men have attained an age beyond 150 years in length, is sufficient to prove that the human frame is not formed for a short term of existence, and that human life may reasonably be expected to be much prolonged by attention to the laws which regulate health. It is a vulgar error to suppose that men are less strong and vigorous, and therefore shorter lived, now than in former times. All the evidence we possess upon the subject goes to establish the cheering fact, that the human race has not degenerated, but that, on the contrary, the average term of existence has kept on increasing ; and that every discovery in science and art tends, in some way or other, to ameliorate the condition and add to the years of mankind. Dr. Southwood Smith says : “ It appears that



towards the close of the 17th century, the duration of life was considerably less in England than in France ; less even than in Holland nearly a century earlier. Thus the nominees of the tontine of France, between the years 1693 and 1745, at the age of fifty, according to M. de Parcieux, fell short of the maximum longevity by 133 weeks ; the public annuitants of Holland, seventy-eight years before, namely, between the years 1615 and 1740, according to M. Kersseboom, fell short of the maximum longevity by 186 weeks ; whereas the nominees of the tontine of England, between the years 1693 and 1775, according to Mr. Finlaison, fell short of it by 269 weeks, a difference nearly double that of Holland, and quite double that of France, in persons of the corresponding rank in society. Since that period, surprising changes have taken place in all the nations of Europe ; but in none has the change been so great as in England. From that period, when its mortality exceeded that of any great and prosperous European country, its mortality has been steadily diminishing ; and at the present time the value of life is greater in England than in any other country in the world. Not only has the value of life in England been regularly increasing until it has advanced beyond that of any country of which there is any record, but the remarkable fact is established, that the whole mass of its people now live considerably longer than its higher classes did in the seventeenth and eighteenth centuries.”\* Nothing can more clearly shew the value of

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\* Philos. of Health, vol. i. p. 145.

knowledge, and the direct influence which its diffusion and extension exert in adding to the sum-total of happiness.

A knowledge of the circumstances on which health depends has, in an especial manner, this influence. Without a certain degree of health, all other advantages are unable to confer happiness. The condition of the body is intimately connected with that of the mind; and it is a truth too much disregarded, that the most valuable intellectual attainments and moral qualities can produce their full and legitimate results, both upon the individual possessing them and upon others, only when the physical powers are fully developed, and, by proper training, rendered the fit instruments of the mind. It is forgotten, also, that the mental qualities themselves depend greatly upon those of the body; that when the body is affected, the mind is generally involved in its misfortune: so that, in reality, physical education is an essential part of mental education. This important truth is now beginning to be recognised; and we may confidently look forward to the time when "how to take care of his health will be one of the leading parts of the moral and intellectual education of man."

It is a remark not unfrequently made, that the prolongation of life is undesirable, since after a certain age there is but little capability of enjoyment, and the weak, helpless objects who survive that age are mere burdens to others. This remark, however, proceeds upon an assumption altogether incorrect; namely, that whatever addition is made to the term of existence belongs to the period of

old age. But it is an important truth, that the period of maturity is the only one which admits of prolongation. Infancy, childhood, and youth, have each certain limits, which are seldom come short of or exceeded: in a given number of years the human being arrives at the highest development of which it is capable, and art can do but little to hasten or retard the arrival of that epoch. So it is with old age—it cannot endure beyond a certain time, but speedily leads to the grave. The period of manhood—the period in which all the powers, both mental and bodily, are in the highest perfection,—is alone capable of extension; and it is so capable almost indefinitely. What a strong motive does not this consideration afford for taking care of the health—for studying the natural laws, on which health depends—and for putting ourselves, as far as possible, in conformity with those laws! And how clearly does this shew that longevity is a good—a real, a substantial good,—the attainment of which is well worth striving for, and the possession of which must contribute largely to happiness!

THE END.

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Dedication. Introduction. Rise and Progress of Surgery; its separation from Medicine; its various branches, Oculists, Aurists, Dentists, &c.; Division of Medical Labour proved to be advantageous to the Public, from the skill and expertness acquired by daily operations on particular Organs; the Blind prefer Hearing to Sight; the Ear hitherto much neglected by the Profession; Prejudices entertained by persons unacquainted with the subject, as to the Impracticability of curing Deafness and other Diseases of the Ear; Majendie and Manec's Discoveries respecting the Ganglionic Plexus of Nerves, and their Influence on the Ear and Eye; Knowledge of the Ear possessed by the Ancients, Hippocrates, Alcmeon, Aristotle, Galen, &c.; Structure and Uses of the different parts of the Ear, in Man, Beasts, Birds, Fishes, and Insects; Anecdote of Dionysius, the Syracusan Tyrant; Form of the Human Ear; parts of the Ear essential to Hearing. Diseases of the External Ear; Necessity and Importance of early attention to; Otitis, or Ear-ache; Herpes; Morbid Septum of the Passage; Polypi; Inspissated



Cerumen ; Accidents, such as foreign bodies getting into the Ear, viz. Insects, Pins, Beads, &c. ; Congenital Inspissation of Cerumen ; Affections of the Tympanum ; Otorrhœa, Cautions against hastily suppressing it; three Stages of the Disease, 1. Simple Puriform Discharge from the Ear ; 2. attended with Fungi and Polypi ; 3. with Caries of the Bones.—Causes ; Exposure to Cold, Scarlatina Maligna, Inflammation of the Tympanic Cavity, Fever, Measles, Small-pox, Influenza ; Obstruction of the Eustachian Tube ; Operations for ; Diseases of the Labyrinth, or Internal Ear—constitutional, as Epileptic, Apoplectic, attended with Faltering of Speech and Blindness, Nervous, Scrofulous, Syphilitic, &c.—local Palsy, as Paralysis of the Auditory Nerve, Paracusis, Melancholy, accompanied with Noises in the Head, Madness, defective Organisation, &c. ; Deafness from early Neglect, Indolence, Inattention, Scrofula, Scurvy, Cancer, suppressed Evacuations, Mental Affections sympathising with the Stomach and Bowels, Hysteria, Hypochondriasis, Neuralgia, Inflammation of the Brain or its Membranes, Convulsions, Delirium, Coma, Gastro-enteritis, Intemperance, &c. &c. ; the Deaf and Dumb ; Deafness concomitant with Dumbness ; Infant Deaf and Dumb curable ; Cautions to Parents ; the Rev. W. Fletcher's Remarks ; Number of Deaf and Dumb in Europe. Acoustics ; Opinions of the ancient Philosophers respecting Sound ; Notices of Pythagoras, Galileo, and Newton ; Lord Brougham and Sir Charles Bell's Illustrations of Paley's Theology ; Description of an Acoustic Chair, its advantages and great capabilities ; Sir E. Stracey's Ear-trumpet, with a Mouth-piece ; Trumpets and artificial Ears described ; various ingenious contrivances mentioned ; occasional Observations by MM. Lallemand, Saissy, Robbi, Itard, Scarpa, Desmoulins, &c. Conclusion ; Foundation of the Royal Dispensary for Diseases of the Ear, by the Author, in 1816 ; its objects ; beneficial effects of its operation ; since its establishment, has cured and relieved upwards of 12,750 patients. An account of the Symptoms and Treatment of many cases closes the work.

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